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Connecticut

Agricultural Experiment Station

NEW HAVEN, CONN.

Fertilizer Report for 1923

E. M. BAILEY, *Chemist in Charge of the
Analytical Laboratory.*

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The Bulletins of this Station are mailed free to citizens of Connecticut who apply for them, and to other applicants as far as the editions permit

CONNECTICUT AGRICULTURAL EXPERIMENT STATION

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November, 1923.

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Report on Commercial Fertilizers, 1923.

E. M. BAILEY, *Chemist in Charge, Analytical Laboratory.*

PROVISIONS OF THE FERTILIZER LAW.

The provisions of the fertilizer law as it affects dealers in commercial fertilizers in this State have been explained in previous bulletins of this Station and the text of the law may be found in Chapter 204 of the Public Acts of 1919. Certain points of interest and importance to both buyers and sellers of fertilizers may, however, be briefly restated.

SIGNIFICANCE OF THE TERM "COMMERCIAL FERTILIZERS".

Explaining what is meant by the term "commercial fertilizers" the law says:

"The term 'commercial fertilizers' shall be construed to mean any and every substance imported, manufactured, prepared or sold for fertilizing or manuring or soil amendment purposes, except barnyard manure and stable manure which have not been artificially treated or manipulated, marl and lime. Cottonseed meal, rapeseed meal, castor pomace and all other vegetable products used as fertilizers, including the ashes of cotton hulls and wood ashes, shall be included as fertilizers within the meaning of this act and separate analysis fees shall be paid on each different grade which is sold or offered for sale in the state. The person responsible for paying the fees above prescribed may deduct from the total tonnage sold such sales of cottonseed meal or other vegetable products as are made to anyone who gives a written certificate on a form supplied by the Connecticut Agricultural Experiment Station stating that the material bought by him was to be used exclusively for feed and not for fertilizer."

Cottonseed meal is a fertilizer within the meaning of the Statute but it is provided that when this product is sold for feeding purposes only, it shall be exempt from the tonnage tax.

The status of cottonseed meal under the fertilizer law has been clearly stated in a bulletin¹ from this Station from which the following may be quoted:

Registration and analysis fees. "Each brand of cottonseed meal must be registered on forms provided by this Station and an analysis fee of ten dollars paid on it before it is sold, offered or exposed for sale, and on the first day of January annually thereafter.

"A distinctive name constitutes a distinct brand. If shipments have different guaranties of composition they are held to be different brands."

¹Bull. of Information No. 9, 1919.

Branding or tagging. "Since nitrogen is the only fertilizer ingredient considered in the trade in cottonseed meal no guaranty of phosphoric acid or potash is required. If either is guaranteed by the manufacturer, however, an additional fee of ten dollars must be paid on each element. The statement of composition now legal for feeds may be used hereafter if the percentage of nitrogen is stated.

"Note that the law regarding feeding stuffs forbids the use of metal in attaching tags and requires that each package shall be branded or tagged with the statement required by law."

Duties of shippers. "It is assumed from correspondence with shippers outside the state that they will register the brands which they sell in Connecticut, will pay analysis fees as has been done in the past by manufacturers of commercial fertilizers, and will semi-annually thereafter pay the tonnage fees.

"They will report to this Station their total sales and, if they wish, may report what part has been sold for feed exclusively. From the reports of dealers within the state it will be possible to determine quite closely the amounts of each brand actually used as feed.

"In the case the jobber outside the state neglects or refuses to register a brand, the dealer who sells it within the state is responsible under the law."

Duties of dealers. "Dealers are required to file with the director of the Station on July first of each year and semi-annually thereafter a sworn statement of their total sales of each brand of cottonseed meal and the amount of each sold exclusively for feed, during the preceding six months."

REQUIREMENTS TO BE COMPLIED WITH BY SELLERS OF COMMERCIAL FERTILIZERS.

The seller is responsible for the proper labeling of each package, for the registration at the Station of every brand sold by him and for the payment of the analysis fee, before offering for sale, and annually thereafter on January 1st.

The seller must also, on the 1st of January and July, report the tonnage of fertilizer sold within the preceding six months and pay to the director of the Station a tonnage fee of 6 cents per ton.

On request, copies of the law and blanks for registration and for tonnage reports will be supplied by the Station.

If, however, proper labeling, registration and payments have been provided for by the manufacturer of the brands or by another responsible person, all sellers of such brands are released from the above mentioned requirements. The retailer, therefore, should assure himself that the requirements of the law have been met by the manufacturers of the brands which he handles, or himself be prepared to meet all these requirements.

PRECAUTIONS TO BE OBSERVED IN DRAWING SAMPLES FOR ANALYSIS.

The analysis of a fertilizer is of no value unless the sample analyzed represents as nearly as possible the stock from which the sample was drawn. The law prescribes the procedure to be followed by authorized agents of this Station when taking official samples for analysis as follows:

"When samples are taken from fertilizers in bags, a tube shall be used, and it shall be inserted at one end of the bag and shall pass substantially the entire length of the bag, so as to take a core of the material being sampled from substantially the entire length of the bag. Samples thus taken from individual bags shall be thoroughly mixed, and the official samples shall be taken from the mixture so drawn by the method known as 'quartering.' Samples of fertilizer taken as herein provided shall be taken from at least five per centum of the separate original unopened packages in the lot, for the mixture from which the official samples shall be taken. If less than one hundred bags are in the lot, at least five bags shall be sampled; if less than five bags, all shall be sampled. Broken packages shall not be sampled."

The Station is called upon each year to analyze a large number of samples, drawn and submitted by individuals, representing fertilizers bought by them for their own use. The purpose of the sender is to find out whether the mixture contains the amounts of plant food which are guaranteed, and, if it does not, to secure evidence upon which to base a claim against the seller for the shortage. *It is, therefore, necessary that the sample be taken essentially in the way prescribed by law and in the presence of a witness so that there can be no question about the fairness of the sample.* The Station will supply to any applicant a form upon which the sender should give the necessary information and submit it with the sample. This makes the sample of public interest and value, which is the only justification for doing the work at State expense; and it is also the sender's protection in case the validity of the sample is questioned.

REGISTRATIONS.

LATE REGISTRATIONS FOR 1922.

To the brands registered for 1922 in our last report should be added:

Atlantic Packing Co., New Haven, Conn.
Dry Ground Fish

Marianna Cotton Oil Co., Inc., Memphis, Tenn.

White Mule Brand 36% Protein Cotton Seed Meal
White Mule Brand 41% Protein Cotton Seed Meal
White Mule Brand 43% Protein Cotton Seed Meal

REGISTRATIONS FOR 1923.

For 1923, 61 individuals and firms registered at this Station for sale in this State 436 brands of fertilizers. As required by Statute the brands so registered are listed as follows:

American Agricultural Chemical Co., 2 Rector St., New York, N. Y.

Agrico Tobacco Manure
Castor Pomace
Complete Potato Mixture
Crescent Complete Manure
Double A Tobacco Fertilizer
Double Manure Salts

Dry Ground Fish, 8-6
Dry Ground Fish, 10-6
Fine Ground Bone
Fish and Potash
Five Four Three Tobacco Fertilizer
Grass and Lawn Top Dressing
Ground Tankage
High Grade Acid Phosphate
Muriate of Potash
Nitrate of Soda
Pulverized Sheep Manure
7% Potash Fertilizer
Sulphate of Ammonia
Sulphate of Potash
Universal Phosphate
Bradley's Complete Manure for Potatoes and Vegetables
Bradley's Complete Manure for Top Dressing Grass and Grain
Bradley's Complete Tobacco Manure
Bradley's Corn Phosphate
Bradley's Fish Compound
Bradley's New Method Fertilizer
Bradley's Potato Manure
Bradley's Potato Fertilizer
Bradley's Superior Tobacco Compound
Bradley's Valley Tobacco Fertilizer
Bradley's XL Superphosphate of Lime
Listers Celebrated Tobacco Fertilizer
Listers Complete Tobacco Manure
Listers Corn and Potato Fertilizer
Listers Eastern Pride Fertilizer
Listers Potato Manure
Listers Squirrel Brand Fertilizer
Listers Standard Pure Superphosphate of Lime
Listers Success Fertilizer
National Complete Tobacco Fertilizer
National Eureka Potato Fertilizer
National Market Garden Fertilizer
National Potato and Corn Phosphate
National Premier Truck Manure
National Special Tobacco
National Top Dressing Compound
National Universal Phosphate
National XXX Fish and Potash
National White Ash Tobacco Grower
Quinnipiac Climax Phosphate
Quinnipiac Corn Manure
Quinnipiac Fish and Potash Phosphate
Quinnipiac Market Garden Manure
Quinnipiac Phosphate
Quinnipiac Potato Phosphate
Quinnipiac Prime Tobacco Manure
Quinnipiac Seed Leaf Tobacco Manure
Quinnipiac Superior Top Dressing Manure
Quinnipiac Wrapper Leaf Brand Tobacco Manure
Wheeler's Ammoniated Fish Manure
Wheeler's Corn Fertilizer
Wheeler's Cuban Tobacco Grower
Wheeler's Early Market Compound
Wheeler's Potato Manure
Wheeler's Royal Wheat Grower
Wheeler's Universal Mixture

American Cotton Oil Co., 65 Broadway, New York, N. Y.

"Aco" Brand Cotton Seed Meal
 Longhorn Brand Cotton Seed Meal
 Surety Brand Cotton Seed Meal

Apothecaries Hall Co., Waterbury, Conn.

Acid Phosphate
 Animal Tankage
 Bone and Meat Tankage
 Bone Meal
 Castor Pomace
 Fish
 Liberty Corn, Fruit and All Crops
 Liberty Fish, Bone and Potash
 Liberty High Grade Market Gardeners
 Liberty High Grade Tobacco Special
 Liberty Market Gardeners Special
 Liberty Tobacco Special
 Liberty Top Dresser for Grass and Grain
 Muriate Potash
 Nitrate Potash
 Nitrate Soda
 Precipitated Bone
 Sulphate Potash

Armour Fertilizer Works, 305 Broadway, New York, N. Y.

Armour's Big Crop Acid Phosphate 16%
 Armour's Big Crop Fertilizer 8-6-6
 Armour's Big Crop Fertilizer 5-8-5
 Armour's Big Crop Fertilizer 5-8-7
 Armour's Big Crop Fertilizer 4-8-4
 Armour's Big Crop Fertilizer 4-6-10
 Armour's Big Crop Fertilizer 3-8-4
 Armour's Big Crop Fertilizer 2-12-2
 Armour's Big Crop Tobacco Special 5-4-5
 Armour's Corn Grower 2-8-2
 Armour's Nitrate of Soda
 Bone Meal 3-48
 Ground Tankage 9-15
 Muriate of Potash
 Raw Bone Meal 4½-47
 Sheep Manure

Ashcraft-Wilkinson Co., Trust Co. of Georgia Bldg., Atlanta, Ga.

Helmet Brand Prime Cotton Seed Meal
 Monarch Brand Prime Cotton Seed Meal
 Paramount Brand Good Cotton Seed Meal

Atlantic Grass Seed Co., Inc., 46 West Broadway, New York, N. Y.

Wonderlawn Grass Grower

Atlantic Packing Co., New Haven, Conn.

Atlantic 5-8-7
 Atlantic 4-8-6
 Atlantic Grain Fertilizer 2-8-2
 Atlantic Potato Phosphate 3-3-4
 Atlantic Special Vegetable 4-8-4
 Atlantic Tobacco Grower 5-4-5
 Atlantic Tobacco Manure 5-8-6

Baker Castor Oil Co., 120 Broadway, New York, N. Y.

Castor Pomace

Barrett Co., 40 Rector St., New York, N. Y.

Arcadian Sulphate of Ammonia

Berkshire Fertilizer Co., Bridgeport, Conn.

Acid Phosphate
Berkshire Ammoniated Bone Phosphate
Berkshire Complete Fertilizer
Berkshire Complete Tobacco
Berkshire 5-8-7
Berkshire Grass Special
Berkshire Market Garden
Berkshire Potato and Vegetable
Berkshire Tobacco Special
Berkshire Tobacco Starter
Castor Pomace
Double Manure Salts
Dry Ground Fish
Fine Ground Bone
Ground Sheep Manure
Muriate of Potash
Nitrate of Soda
Sulphate of Potash

Blish Hardware Co., F. T., South Manchester, Conn.

Complete Market Garden
Complete Tobacco Fertilizer
Potato Phosphate
Top Dressing for Grass

Boardman, F. E., Middletown, Conn.

Boardman's Fertilizer for Potatoes and General Crops
Boardman's Tobacco Fertilizer

Bowker Fertilizer Co., 60 Trinity Place, New York, N. Y.

Bowker's All Round Fertilizer
Bowker's Connecticut Valley Tobacco Fertilizer
Bowker's Corn, Grain and Grass Phosphate
Bowker's Fisherman's Brand Fish and Potash
Bowker's Market Garden Fertilizer
Bowker's Potato and Vegetable Phosphate
Bowker's 16% Acid Phosphate
Bowker's Square Brand Farm and Garden Phosphate
Bowker's Sure Crop Phosphate
Stockbridge Early Crop Manure
Stockbridge Potato and Vegetable Manure
Stockbridge Premier Tobacco Grower
Stockbridge Tobacco Manure
Stockbridge Top Dressing and Forcing Manure
Stockbridge Truck Manure

Bridge's Sons, Inc., Amos D., Hazardville, Conn.

Corn, Onion and Potato and General Purpose
Special Tobacco Fertilizer

Brodé Corporation, F. W., 119 Madison Ave., Memphis, Tenn.

"Owl Brand 36%" Cotton Seed Meal
 "Owl Brand 43%" High Grade Cotton Seed Meal

Buckeye Cotton Oil Co., Cincinnati, Ohio.

"Buckeye" Good Cotton Seed Meal Good Quality

Chittenden Co., E. D., Bridgeport, Conn.

Chittenden's Acid Phosphate
 Chittenden's Castor Pomace
 Chittenden's Complete Grain
 Chittenden's Dry Ground Fish
 Chittenden's Ground Bone 3-50
 Chittenden's High Grade Tobacco
 Chittenden's Nitrate of Soda
 Chittenden's Potato Special 4% Potash
 Chittenden's Potato Special 6% Potash
 Chittenden's Tobacco Special

Clark Seed Co., Everett B., Milford, Conn.

Clark's 3-8-2
 Clark's 4-8-4
 Clark's Special Mixture with 6% Potash
 Nitrate of Soda
 Special Mixture Tip Top Brand
 16% Acid Phosphate

Coe-Mortimer Co., 2 Rector St., New York, N. Y.

Country Club Golf and Lawn Fertilizer "Brand A"
 Country Club Golf and Lawn Fertilizer "Brand B"
 E. Frank Coe's Celebrated Special Potato Fertilizer
 E. Frank Coe's Columbian Corn and Potato Fertilizer
 E. Frank Coe's Connecticut Wrapper Grower
 E. Frank Coe's Fish and Potash Guano
 E. Frank Coe's Gold Brand Excelsior Guano
 E. Frank Coe's New Englander Special
 E. Frank Coe's Red Brand Excelsior Guano
 E. Frank Coe's 16% Superphosphate
 E. Frank Coe's Special Grass Top Dressing
 E. Frank Coe's Standard Potato Fertilizer
 E. Frank Coe's Sure Burn Tobacco Grower
 E. Frank Coe's Tobacco Leaf Fertilizer

Connecticut Fat Rendering & Fertilizing Corp., West Haven, Conn.

Tankage

Consolidated Rendering Co., 40 North Market St., Boston, Mass.

Ground Bone (3-24)
 Ground Bone (2.5-26)
 High Grade Acid Phosphate
 Muriate Potash
 Nitrate Soda
 Sulphate Ammonia
 Sulphate Potash
 Tankage 6-30
 Tankage 9-20

Consumers Chemical Corporation, 120 Broadway, New York, N. Y.

Kainit
Nitrate of Soda

DuPont de Nemours & Co., E. I., Wilmington, Del.

Nitrate of Soda

Eastern States Farmers' Exchange, 292 Worthington St., Springfield, Mass.

Eastern States 2-8-2
Eastern States 4-8-4
Eastern States 4-8-7
Eastern States 3-12-3 No-Filler
Eastern States 5-8-7 No-Filler
Eastern States 5-10-5 No-Filler
Eastern States 7-8-3 No-Filler
Eastern States 16% Acid Phosphate
Eastern States Ground Tankage 7-15
Eastern States Muriate of Potash
Eastern States Nitrate of Soda
Eastern States Formula A
Eastern States Formula B
Eastern States Formula C

Essex Fertilizer Co., 39 North Market St., Boston, Mass.

Essex Fish Fertilizer for All Crops 3-8-4
Essex Market Garden for Potatoes, Roots and Vegetables 4-8-4
Essex Potato Phosphate for Potatoes and Vegetables 4-8-7
Essex 2-8-2 for Farm and Garden
Essex 4-6-10 for Potatoes and Vegetables
Essex Tobacco Manure 5-4-5
Essex Tobacco Manure 5-8-6

Frisbie Co., L. T., New Haven, Conn.

Castor Pomace
Dry Ground Fish
Frisbie's Bone Meal
Frisbie's Corn and Grain Fertilizer 2-8-2
Frisbie's 5-8-7
Frisbie's 5-10-5
Frisbie's Market Garden 4-8-6
Frisbie's Special 3-8-4
Frisbie's Special Vegetable and Potato Grower 4-8-4
Frisbie's Tobacco Grower 5-4-5
Frisbie's Tobacco Manure 5-8-6
Frisbie's Top Dresser 7-5-4

Humphreys-Godwin Co., Inc., Memphis, Tenn.

Bull Brand Cotton Seed Meal.
Danish Brand Cotton Seed Feed
Dixie Brand Cotton Seed Meal

International Agricultural Corporation (Buffalo Fertilizer Works), 126 State St., Boston, Mass.

Buffalo Complete Tobacco
Buffalo Economy
Buffalo High Grade Manure
Buffalo New England Special
Buffalo Tobacco Producer
Buffalo Top Dresser and Starter

Jones Phosphate Co., Robin, Nashville, Tenn.

Ground Rock Phosphate

Joynt, John, Lucknow, Ontario, Canada

The Joynt Brand Canada Unleached Hardwood Ashes

Lovitt & Co., L. B., Memphis, Tenn.

"Lovitt Brand" Cotton Seed Meal

"Neal's Choice" Cotton Seed Meal

"Thirty-Six Brand" Cotton Seed Meal

Lowell Fertilizer Company, 40 North Market St., Boston, Mass.

Lowell Animal Brand 3-8-4

Lowell Bone Fertilizer 2-8-2 for Corn, Grain, Grass and Vegetables

Lowell 5-8-7 for Potatoes and Vegetables

Lowell 4-8-4 for Potatoes, Corn and Vegetables

Lowell 4-6-10 for Potatoes and Vegetables

Lowell Tobacco 5-4-5 for Tobacco, Fruits and Vines

Lowell Tobacco Manure 5-8-6

Lowell Potato Phosphate for Potatoes and Vegetables 4-8-7

Lowell Top Dressing 7-5-2

Mapes Formula & Peruvian Guano Co., 143 Liberty St., New York, N. Y.

The Mapes Connecticut Valley Special

The Mapes Corn Manure

The Mapes C. S. Tobacco Manure

The Mapes General Tobacco Manure

The Mapes General Truck Manure

The Mapes General Use Manure

The Mapes Grain Brand

The Mapes Onion Manure

The Mapes Potato Manure

The Mapes Tobacco Ash Constituents

The Mapes Tobacco Manure Wrapper Brand

The Mapes Tobacco Starter Improved

The Mapes Top Dresser

Marianna Sales Co., Falls Building, Memphis, Tenn.

White Mule Brand 36% protein Cottonseed Meal

White Mule Brand 41% protein Cottonseed Meal

White Mule Brand 43% protein Cottonseed Meal

Meech & Stoddard, Inc., Middletown, Conn.

Bixota 5-8-7

Bixota 4-8-4

Bixota 3-8-3

Bixota 2-8-2

Mitchell, Walter L., 699 Forest St., New Haven, Conn.

Mitchell's 16% Acid Phosphate

Mitchell's Phosphoflour

Mitchell's Two-Speed Phosphate

Natural Guano Co., Aurora, Illinois.

"Sheep's Head" Pulverized Sheep Manure

Nature's Plant Food Company of Maine, 43 Commercial St., Boston, Mass.

Nature's Plant Food

Neal & Company, Inc., R. N., Memphis, Tenn.
 "Triangle" 41% Cottonseed Meal

New England Fertilizer Company, 40A North Market St., Boston, Mass.
 New England Corn Phosphate 2-8-2 for Grain and Vegetables
 New England 4-8-4 for Potatoes and Vegetables
 New England Superphosphate 3-8-4
 New England Potato Phosphate 4-8-7 for Potatoes and Vegetables
 New England Tobacco 5-4-5 for Tobacco, Fruits and Vines
 New England Tobacco Manure 5-8-6
 New England 2-8-3 for Vegetables and Grain

Nitrate Agencies Company, 85 Water St., New York, N. Y.
 Naco Brand Acid Phosphate
 Naco Brand Castor Pomace
 Naco Brand Fish
 Naco Brand Muriate of Potash
 Naco Brand Nitrapo
 Naco Brand Nitrate of Soda
 Naco Brand Number 7
 Naco Brand Number 12 Peruvian Guano Mixture
 Naco Brand Number 14 Peruvian Guano Mixture
 Naco Brand Number 19 Peruvian Guano Mixture
 Naco Brand Number 24 Peruvian Guano Mixture
 Naco Brand Peruvian Guano
 Naco Brand Raw Bone
 Naco Brand Steamed Bone
 Naco Brand Sulphate of Ammonia
 Naco Brand Sulphate of Potash
 Naco Brand Tankage

Nothern, W. C., Box 414, Memphis, Tenn.
 Bee Brand Cottonseed Meal

Olds & Whipple, Inc., Hartford, Conn.
 Double Manure Salts
 High Grade Sulphate of Potash
 Nitrate of Soda
 O & W Acid Phosphate
 O & W Bone Phosphate and Potash Compound
 O & W Castor Pomace
 O & W Complete Corn, Onion and Potato Fertilizer
 O & W Complete Corn, Potato and Onion Fertilizer
 O & W Complete Tobacco Fertilizer
 O & W Dry Ground Fish
 O & W Fish and Potash
 O & W H G Starter and Potash Compound
 O & W High Grade Potato Fertilizer
 O & W High Grade Tobacco Starter
 O & W Precipitated Bone
 O & W Pure Bone Meal
 O & W Top Dressing
 Sulphate of Ammonia

Pacific Manure & Fertilizer Company, 429 Davis St., San Francisco, Cal.
 Groz-It Brand Pulverized Sheep Manure

Parmenter & Polsey Fertilizer Company, 41 North Market St., Boston, Mass.

Parmenter & Polsey 5-4-5 for Tobacco, Fruit and Vines
 Parmenter & Polsey 4-8-4 for Potatoes, Corn and Vegetables
 Parmenter & Polsey Plymouth Rock Brand 3-8-4 for all Crops
 Parmenter & Polsey Potato Phosphate for Potatoes and Vegetables 4-8-7
 Parmenter & Polsey 2-8-2 for Farm and Garden

Phoenix Cotton Oil Co., Memphis, Tenn.

Phoenix 36% protein Cotton Seed Meal
 Phoenix 41% protein Cotton Seed Meal
 Phoenix 43% protein Cotton Seed Meal

Platt Company, The Frank S., New Haven, Conn.

Platco Special 4-8-6

Potash-Marl, Inc., 15 East 40th St., New York, N. Y.

Potash-Marl

Premier Poultry Manure Company, 431 So. Dearborn St., Chicago, Ill.

Premier Brand Pulverized Poultry Manure.

Pulverized Manure Company, 828 Exchange Ave., Union Stock Yards, Chicago, Ill.

Wizard Brand Manure
 Wizard Brand Sheep Manure

Rogers & Hubbard Company, The, Portland, Conn.

Acid Phosphate
 Castor Pomace
 Cotton Seed Meal
 Garden Fertilizer
 Ground Fish
 Hubbard's "Bone Base" Fertilizer for Oats and Top Dressing
 Hubbard's "Bone Base" Fertilizer for Seeding Down
 Hubbard's "Bone Base" Soluble Corn and General Crops Manure
 Hubbard's "Bone Base" Soluble Potato Manure
 Hubbard's Pure Raw Knuckle Bone Flour
 Hubbard's Strictly Pure Fine Bone
 Nitrate of Soda
 Rogers & Hubbard's All Soils—All Crops Fertilizer
 Rogers & Hubbard's Climax Tobacco Brand
 Rogers & Hubbard's Corn and Grain Fertilizer
 Rogers & Hubbard's High Potash Fertilizer
 Rogers & Hubbard's Potato Fertilizer
 Rogers & Hubbard's Soluble Tobacco Manure
 Rogers & Hubbard's Tobacco Grower, Vegetable Formula
 Sulphate of Ammonia
 Sulphate of Potash

Royster Guano Company, F. S., 1604 Munsey Building, Baltimore, Md.

Dry Ground Fish
 Muriate of Potash
 Nitrate of Soda
 Royster's Bully Guano
 Royster's Fine Ground Bone Meal
 Royster's Fish, Flesh and Fowl

Royster's Pure Raw Bone Meal
Royster's Quality Truckee
Royster's 16% Acid Phosphate
Royster's Top Dresser
Royster's Truckee's Delight
Royster's Valley Tobacco Formula
Sulphate of Potash

Sanderson Fertilizer & Chemical Co., New Haven, Conn.

Sanderson's Acid Phosphate
Sanderson's Atlantic Coast Bone, Fish and Potash
Sanderson's Castor Pomace
Sanderson's Complete Tobacco Grower
Sanderson's Corn Superphosphate
Sanderson's Dry Ground Fish
Sanderson's Fine Ground Bone
Sanderson's Formula A
Sanderson's Formula B
Sanderson's Kelsey's Bone, Fish and Potash
Sanderson's Nitrate of Soda
Sanderson's Potato Manure
Sanderson's South American Sheep and Goat Manure
Sanderson's Tobacco Grower
Sanderson's Top Dressing for Grass and Grain

Shoemaker & Co., Inc., M. L., Venango St. and Delaware Ave., Philadelphia, Pa.

Swift-Sure Bone Meal
Swift-Sure Cotton Seed Mixture
Swift-Sure Super Phosphate Crop Grower
Swift-Sure Super Phosphate Potato No. 1
Swift-Sure Super Phosphate Tobacco and General Use
Swift-Sure Super Phosphate Tobacco Starter

Springfield Rendering Company, Springfield, Mass.

Springfield Animal Brand, 3-8-4
Springfield 4-8-6
Springfield Market Garden Grower and Top Dresser 5-8-7
Springfield Special Potato, Onion and Vegetable 4-8-4
Springfield Tobacco Special, 5-4-5

Virginia-Carolina Chemical Company, 120 Broadway, New York, N. Y.

V-C Aroostook Potato Grower
V-C Champion Brand
V-C Double Owl Brand
V-C Eureka Brand
V-C Fish, Phosphate and Potash Brand
V-C Indian Chief Brand
V-C Olympic Brand
V-C Owl Brand
V-C Perfection Brand
V-C Plymouth Brand
V-C Royal Brand
V-C Tip Top Brand
V-C Universal Brand

Westervelt & Co., A. C., Memphis, Tenn.

Sun Brand Cottonseed Meal

Whitman & Pratt Rendering Co., Boston, Mass.

Whitman & Pratt's 4-8-4 Brand

Wilcox Fertilizer Company, Mystic, Conn.

Wilcox Acid Phosphate
Wilcox Corn Special
Wilcox Dry Ground Fish
Wilcox Fish and Potash
Wilcox 5-8-7 Fertilizer
Wilcox 4-8-4 Fertilizer
Wilcox Grass and Truck Fertilizer
Wilcox Ground Packing-House Tankage
Wilcox Ground Steamed Bone
Wilcox Nitrate of Soda
Wilcox Potato and Vegetable Phosphate
Wilcox Tobacco Special

S. D. Woodruff & Sons, Orange, Conn.

"Woodruff's Home Mixed"

Worcester Rendering Company, Auburn, Mass.

Prosperity Brand Complete Dressing
Prosperity Brand Corn and Grain Fertilizer
Prosperity Brand Ground Tankage
Prosperity Brand Market Garden
Prosperity Brand Potato and Vegetable Fertilizer

INSPECTION OF 1923.

During the year, Mr. Churchill, the sampling agent of the Station, has visited 93 towns and villages in the State and has taken 548 official samples of fertilizers which number includes all the registered brands which were found on sale. These together with samples submitted by purchasers or others interested may be classified as follows:

CLASSIFICATION OF FERTILIZERS ANALYZED.

	Number of Samples	Page
I. Containing nitrogen as the chief active ingredient:		
Nitrate of soda.....	24	17
Sulphate of ammonia.....	9	17
Castor pomace.....	71	20
Cottonseed meal.....	179	20
Linseed meal.....	3	33
II. Containing phosphoric acid as the chief active ingredient:		
Raw rock phosphate.....	1	33
Precipitated bone phosphate.....	16	33
Dissolved rock phosphate or acid phosphate.....	21	35
III. Containing potash as the chief active ingredient:		
Carbonate of potash	4	38
Muriate of potash.....	8	38
High-grade sulphate of potash.....	13	38
Kainit.....	1	38
Double sulphate of potash and magnesia.....	11	42
IV. Containing nitrogen and potash:		
“Nitrapo,” etc.....	4	42
V. Containing nitrogen and phosphoric acid:		
Dry ground fish.....	49	43
Tankage.....	10	48
Ground bone.....	28	49
VI. Mixed fertilizers:		
Containing phosphoric acid and potash.....	2	52
Containing nitrogen and phosphoric acid.....	7	54
Containing nitrogen, phosphoric acid and potash	270	54
Special and home mixtures.....	26	82
VII. Miscellaneous fertilizers, amendments, waste products, etc.:		
Wood ashes.....	16	83
Sheep manure, etc.....	8	83
Potash-Marl.....	1	86
Limestone, etc.....	4	86
Peat or muck.....	4	87
Sewage sludge.....	2	87
Miscellaneous.....	67	88
Total.....		859

I. RAW MATERIALS CHIEFLY VALUABLE FOR NITROGEN.

NITRATE OF SODA.

Twenty-four samples were examined and results are given in Table I.

Chemically pure nitrate of soda contains 16.47 per cent. of nitrogen but commercial nitrate of soda or "Chili saltpeter" contains from 15 to 16 per cent. which is equivalent to 91 to 97 per cent. nitrate of soda. The impurities in the commercial article are chiefly common salt and water. Plants respond quickly to nitrogen in this form because it is directly assimilable. The residue which nitrate of soda leaves in the soil is alkaline.

At the prices quoted for this material, nitrogen has cost from 17.2 cents to 24.4 cents per pound, the average cost being 20.6 cents.

SULPHATE OF AMMONIA.

Nine samples were analyzed and the results are given in Table II.
21235. Sold by Apothecaries Hall Co., Waterbury. Sent by Hatheway & Steane, Hartford.

20972. Sold by The Barrett Co., New York. Sent by Hatheway & Steane, Hartford.

21175. Sold by The Barrett Co., New York. Sent by Berkshire Fertilizer Co., Bridgeport.

21276. Sold by American Agricultural Chemical Co., New York. Stock of M. H. Edwards, Collinsville.

21056. Sold by Olds & Whipple, Inc., Hartford. Stock of Harold M. Newberry, East Windsor Hill.

21427. Sold by Olds & Whipple, Inc., Hartford. Sampled at the factory.

20883. Sold by The Barrett Co., New York. Sent by Hatheway & Steane, Hartford.

20922. Sold by Consolidated Rendering Co., Boston. Sampled at the factory, New Haven.

21463. Sold by The Rogers & Hubbard Co., Portland. Sampled at the factory.

TABLE I. ANALYSES OF NITRATE OF SODA.

Station No.	Manufacturer or Jobber.	Purchased, Sampled or Sent by	Per cent Nitrogen.		Cost per ton.	Nitrogen costs cents per pound.
			Guaranteed.	Found.		
20450	W. L. Grace Co., New York.....	American Sumatra Tobacco Co., Bloomfield.....	15.00	15.96	.....	.....
20451	W. L. Grace Co., New York.....	American Sumatra Tobacco Co., Bloomfield.....	15.00	15.98	.....	.....
20452	W. L. Grace Co., New York.....	American Sumatra Tobacco Co., Bloomfield.....	15.00	16.00	.....	.....
21031	Apothecaries Hall Co., Waterbury.....	J. E. Shepard, So. Windsor.....	15.00	15.54	\$56.50	18.2
21159	L.T. Frisbie, New Haven	A. E. Plant Sons Co., Bradford.....	15.63	15.64	59.00	18.9
20951	Sanderson Fertilizer and Chemical Co., New Haven.....	Station Agent at the factory	15.00	15.54	59.47	19.1
21250	Manufacturer unknown.	Walter T. Clark, County Agent, Norwich.....	.....	15.40	59.50	19.3
20906	Berkshire Fertilizer Co., Bridgeport.....	Station Agent at the factory	14.80	15.78	62.00	19.6
20956	Apothecaries Hall Co., Waterbury.....	Conn. School for Boys, Meriden.....	15.00	15.54	61.00	19.6
21279	E. B. Clark Seed Co., Milford.....	Station Agent at the factory	.....	15.38	62.00	20.2
20936	The Rogers & Hubbard Co., Portland.....	Station Agent at the factory	15.00	15.92	65.00	20.4
21243	Olds & Whipple, Inc., Hartford.....	Harold M. Newberry, East Windsor Hill.....	.....	15.92	66.50	20.9
20942	Olds & Whipple, Inc., Hartford.....	Station Agent at the factory	15.00	15.44	66.50	21.5
21004	Olds & Whipple, Inc., Hartford.....	Harold M. Newberry, East Windsor Hill.....	15.00	15.44	66.50	21.5
21300	Eastern States Farmers' Exchange, Springfield.	C. M. Beeman, Granby.....	14.80	14.96	66.55	22.2
21474	F. S. Royster Guano Co., Baltimore.....	Plumb Bros., Waterbury.....	15.00	15.62	70.00	22.4
21286	E. D. Chittenden Co., Bridgeport.....	J. E. Stoddard, Abington.....	15.00	15.52	70.00	22.5
20908	Apothecaries Hall Co., Waterbury.....	Station Agent at the factory	15.00	15.08	70.00	23.2
21540	Consumers Chemical Corp., New York.....	E. O. Chapman, No. Haven	14.80	15.48	73.00	23.6

TABLE I. ANALYSES OF NITRATE OF SODA—*Concluded.*

Station No.	Manufacturer or Jobber.	Purchased, Sampled or Sent by	Per cent Nitrogen.		Cost per ton.	Nitrogen costs cents per pound.
			Guaranteed.	Found.		
21147	American Agricultural Chemical Co., New York.....	Bristol Grain & Supply Co., Bristol.....	15.00	15.60	\$75.00	24.0
21169	Armour Fertilizer Works, New York.....	John O. Fox, Putnam.....	14.81	15.18	74.00	24.4
20918	Manufacturer unknown.	The Meriden Farmers' Exchange, Meriden.....	.....	15.29	.....	.....
20923	Consolidated Rendering Co., Boston.....	Station Agent at the factory, New Haven.....	15.50	15.20	.....	.....
21119	Wilcox Fertilizer Co., Mystic.....	Station Agent at the factory	15.00	15.36	.....	.....

TABLE II. ANALYSES OF SULPHATE OF AMMONIA.

Station No.	Per Cent of Nitrogen Guaranteed.	Per Cent of Nitrogen Found.	Cost per ton.	Nitrogen costs cents per pound.
21235	....	21.00	\$70.00	16.7
20972	....	20.78	70.00	16.8
21175	20.75	21.00	80.00	19.0
21276	20.16	20.60	80.00	19.4
21056	20.56	20.92	83.60	20.0
21427	20.56	20.78	83.60	20.1
20883	20.75	21.00	....	...
20922	20.50	20.56	....	...
21463	20.50	20.54	....	...

Pure ammonium sulphate contains 21.2 per cent of nitrogen, but the article of commerce usually contains about 20.5 per cent. Four of the samples examined this year were of a high degree of purity containing, or closely approaching, 21 per cent.

Like nitrate of soda, ammonium sulphate is readily soluble in water and quickly diffuses through the soil. Since it does not leach out from the soil so rapidly as does nitrate of soda and because its assimilation by plants is somewhat slower it has an advantage over nitrate of soda in wet seasons and it sustains growth over a longer period.

Prices, so far as quoted to us, ranged from \$70 to \$83.60 per ton making the cost of nitrogen per pound from 16.7 cents to 20.1 cents the average being 18.7 cents.

CASTOR POMACE.

Seventy-one samples have been analyzed and results are given in Table III.

Castor pomace is the residue left after extracting the oil from the castor bean. Live stock will eat the pomace greedily and since it contains a deadly poison care should be taken not to store it where it will be accessible to farm animals.

This material has been used in increasing quantities in the last two years as a source of organic nitrogen in mixed fertilizers as a supplement to cottonseed meal. It contains from 4.5 to 5.5 per cent of nitrogen the availability of which is about equal to that of dried blood and cottonseed meal. Besides nitrogen, it contains on the average about 1 per cent of potash (K_2O), and 2 per cent of phosphoric acid (P_2O_5), the latter largely or entirely available.

The average nitrogen content of samples analyzed during the past year is 5.1 per cent and the average ton price, so far as prices are recorded with us confidentially or otherwise, is \$34.51. *Thus the cost of nitrogen per pound in this material has been 33.8 cents, no allowance being made for the phosphoric acid and potash which it contains.*

COTTONSEED MEAL.

The standard commercial grades of cottonseed meals used for feeding purposes, and the grades chiefly sold for fertilizer, are guaranteed as follows:

36 per cent protein containing 5.76 per cent nitrogen equivalent to 7.00 per cent ammonia.

41 per cent protein containing 6.56 per cent nitrogen equivalent to 8.00 per cent ammonia.

43 per cent protein containing 6.88 per cent nitrogen equivalent to 8.3 per cent ammonia.

One hundred and seventy-nine samples of cottonseed meal have been analyzed and results are given in Table V. These samples belong largely to the three groups just named. Three have odd guaranties and in twelve cases no statement of guaranty could be secured.

Information as to prices was not afforded in some cases and in others it was confidential, but the cost per pound of nitrogen has been calculated based upon the average of such ton prices as were quoted to us whether confidentially or otherwise.

Samples which failed to meet their guaranties by more than 0.1 per cent of nitrogen (equivalent to 0.63 per cent of protein), are noted in the subjoined summary as deficient. If a tolerance of 1 per cent protein (0.16 per cent nitrogen), is allowed the number of deficient samples is somewhat reduced viz. to 29.

These data appear in summary form in Table IV.

TABLE III. ANALYSES OF CASTOR POMACE.

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent Nitrogen.		Cost per ton.
			Found.	Guaranteed.	
20996	The American Agricultural Chemical Co., New York City.	Station Agent from Geo. S. Phelps & Co., Thompsonville	4.99	4.53	\$39.00
20772	Apothecaries Hall Co., Waterbury, Conn. N. Y., N. H. & H. R. R. 75598	Spencer Bros., Inc., Suffield	5.11	4.52	34.00
20773	48664	Spencer Bros., Inc., Suffield	4.88	4.52	34.00
20855	33443	Hatheway & Steane, Hartford	5.72	4.52	31.75
20856	67113	Hatheway & Steane, Hartford	4.88	4.52	31.75
20881	516550	Hatheway & Steane, Hartford	5.27	4.52	.....
20882	51578	Hatheway & Steane, Hartford	5.79	4.52	.....
20899	P. & R. 16482	Spencer Bros., Inc., Suffield	5.10	4.52	34.00
20900	L. & N. 95777	Spencer Bros., Inc., Suffield	4.57	4.52	34.00
20973	101264	Hatheway & Steane, Hartford	5.24	4.52	31.75
21041		Station Agent from J. P. Norton, Broad Brook	4.70	4.52	32.50
	Baker Castor Oil Co., New York City.				
20442	534799	American Sumatra Tobacco Co., Bloomfield	4.33	4.52	.....
20443	87488	American Sumatra Tobacco Co., Bloomfield	5.91	4.52	.....
20444	561220	American Sumatra Tobacco Co., Bloomfield	4.84	4.52	.....
20445	3511	American Sumatra Tobacco Co., Bloomfield	4.95	4.52	.....
20446	160747	American Sumatra Tobacco Co., Bloomfield	5.95	4.52	.....
20447	28397	American Sumatra Tobacco Co., Bloomfield	6.30	4.52	.....
20448	303027	American Sumatra Tobacco Co., Bloomfield	5.15	4.52	.....
20449	20267	American Sumatra Tobacco Co., Bloomfield	5.62	4.52	.....
20517	90623	American Sumatra Tobacco Co., Bloomfield	4.88	4.52	.....
20518	556528	American Sumatra Tobacco Co., Bloomfield	4.96	4.52	.....
20519	22130	American Sumatra Tobacco Co., Bloomfield	4.79	4.52	.....

TABLE III. ANALYSES OF CASTOR POMACE—Continued.

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent Nitrogen.		Cost per ton.
			Found.	Guaranteed.	
	Baker Castor Oil Co.				
20520	61212.....	American Sumatra Tobacco Co., Bloomfield.....	5.03	4.52	.....
20521	10154.....	American Sumatra Tobacco Co., Bloomfield.....	4.98	4.52	.....
20522	19928.....	American Sumatra Tobacco Co., Bloomfield.....	4.90	4.52	.....
20523	153529.....	American Sumatra Tobacco Co., Bloomfield.....	5.19	4.52	.....
20524	74483.....	American Sumatra Tobacco Co., Bloomfield.....	5.18	4.52	.....
20593	81821.....	American Sumatra Tobacco Co., Bloomfield.....	4.96	.....	.....
20594	48966.....	American Sumatra Tobacco Co., Bloomfield.....	5.17	.....	.....
20595	34679.....	American Sumatra Tobacco Co., Bloomfield.....	5.18	.....	.....
20596	40277.....	American Sumatra Tobacco Co., Bloomfield.....	5.68	.....	.....
20597	535120.....	American Sumatra Tobacco Co., Bloomfield.....	5.10	.....	.....
20598	88536.....	American Sumatra Tobacco Co., Bloomfield.....	5.29	.....	.....
20599	83939.....	American Sumatra Tobacco Co., Bloomfield.....	5.38	.....	.....
20646	.....	American Sumatra Tobacco Co., Bloomfield.....	5.12	.....	.....
20658	534842.....	American Sumatra Tobacco Co., Bloomfield.....	5.16	4.52	.....
20679	22834.....	American Sumatra Tobacco Co., Bloomfield.....	5.36	4.52	.....
20680	14609.....	American Sumatra Tobacco Co., Bloomfield.....	4.68	.....	.....
20752	85576.....	American Sumatra Tobacco Co., Bloomfield.....	5.12	4.52	.....
20753	76289.....	American Sumatra Tobacco Co., Bloomfield.....	5.10	4.52	.....
20754	14285.....	American Sumatra Tobacco Co., Bloomfield.....	5.14	4.52	.....
20755	7568.....	American Sumatra Tobacco Co., Bloomfield.....	5.08	4.52	.....
20756	83221.....	American Sumatra Tobacco Co., Bloomfield.....	4.46	4.52	.....
20784	13931.....	American Sumatra Tobacco Co., Bloomfield.....	4.55	4.52	.....
20997	.....	Station Agent from E. J. Ban- tle, Glastonbury.....	4.44	4.50	\$37.00

TABLE III. ANALYSES OF CASTOR POMACE—Continued.

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent Nitrogen.		Cost per ton.
			Found.	Guaranteed.	
	Baker Castor Oil Co.				
21033	549580.....	Station Agent from J. E. Shepard, South Windsor.....	4.99	4.50	\$31.00
21034	114242.....	Station Agent from J. E. Shepard, South Windsor.....	4.86	4.50	31.00
21035	41436.....	Station Agent from J. E. Shepard, South Windsor.....	4.80	4.50	31.00
	Berkshire Fertilizer Co., Bridgeport.				
20713	32002.....	Station Agent from J. E. Shepard, South Windsor.....	5.04	.....	34.20
21358	.....	Station Agent from Paul Ros-tek, Melrose.....	4.99	5.00	38.00
	E. D. Chittenden Co., Bridgeport.				
21199	.....	Station Agent from E. J. Bantle, Glastonbury.....	5.50	4.50	36.00
	L. T. Frisbie Co., New Haven, Conn.				
20926	.....	Station Agent from factory.....	5.28	4.52	.....
	Olds & Whipple, Inc., Hartford, Conn.				
20867	N. Y. C. 257636.....	J. E. Shepard, South Windsor	4.54	4.50	32.40
20889	537458 and 560869.....	Clark Bros., Windsor.....	5.00	4.94	.....
20897	P. R. R. 549580.....	J. E. Shepard, South Windsor	4.18	4.50	.....
20934	P. R. R. 558771.....	Daly Bros., Warehouse Pt.....	5.60	4.50	33.00
20981	20629.....	J. E. Shepard, South Windsor	5.14	4.50	31.00
20982	561351.....	J. E. Shepard, South Windsor	4.90	4.50	31.00
20983	92785.....	J. E. Shepard, South Windsor	5.03	4.50	31.00
20984	41703.....	J. E. Shepard, South Windsor	5.40	4.50	31.00
21006	.....	Harold M. Newberry, East Windsor Hill.....	5.21	4.94	36.10
21058	.....	Harold M. Newberry, East Windsor Hill.....	5.10	4.94	36.10
21076	122078.....	J. E. Shepard, South Windsor	4.99	4.94	31.00
21077	31265.....	J. E. Shepard, South Windsor	4.78	4.94	31.00
21213	.....	L. Wetstone, Hartford.....	5.62	4.94	36.00
21214	.....	L. Wetstone, Hartford.....	5.83	4.94	36.00
21244	.....	Harold M. Newberry, East Windsor Hill.....	5.06	4.94	34.20
21425	.....	Station Agent from W. H. Carrier, Glastonbury.....	5.70	4.94	36.00

TABLE III. ANALYSES OF CASTOR POMACE—*Concluded.*

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent Nitrogen.		Cost per ton.
			Found.	Guaranteed.	
20937	The Rogers & Hubbard Co., Portland.	Station Agent from factory...	4.84	5.10	\$38.00
20952	Sanderson Fertilizer & Chemical Co., New Haven, Conn.	Station Agent from factory...	5.05	4.53	32.94
20692	Manufacturer unknown 13042.....	Conn. Sumatra Tobacco, Buckland.....	4.40	.....	.....
21411	.....	J. Stuart Halpine, Burnside.....	5.16	.....	.....

TABLE IV. SUMMARY OF DATA ON COTTONSEED MEAL.

GROUP.	Number of Samples.	Number Deficient.	Average Nitrogen %	Average Cost per Ton.	Average Cost of Nitrogen, cents per Pound.
36 per cent (5.76 N)	16	2	5.84	\$52.46 ¹	44.9
41 per cent (6.56 N)	125	32	6.58	44.33 ²	33.7
43 per cent (6.88 N)	23	4	6.83	56.73 ³	41.5
Odd per cent	3	0	...	...	...
No guaranty	12	..	...	...	...
Totals and averages	179	38	6.53	\$51.88 ⁴	39.7

During the past year the 41 per cent protein meal has been the one chiefly sold and nitrogen has been purchased at the best advantage in this grade. Again it will be noted that nitrogen has cost most in the lowest grade product. The average nitrogen content of all the samples examined is close to the guaranty for the medium grade.

¹ Based on 15 quotations.² Based on 89 quotations.³ Based on 21 quotations.⁴ Based on 128 quotations.

TABLE V. ANALYSES OF COTTONSEED MEAL.

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent Nitrogen.		Cost per ton.
			Found.	Guaranteed.	
	American Cotton Oil Co., Atlanta, Ga.				
20871	Aco. 202054.....	Hatheway & Steane, Hartford	6.85	6.59	.....
20872	Aco. 31401.....	Hatheway & Steane, Hartford	6.53	6.59	.....
20873	Aco. 30394.....	Hatheway & Steane, Hartford	7.08	6.59	.....
20875	Aco. 35614.....	Hatheway & Steane, Hartford	6.84	6.59	.....
20970	Aco. 54850.....	Hatheway & Steane, Hartford	6.78	6.59	\$55.75
20887	Longhorn, 150715.....	Clark Bros., Windsor.....	7.04	6.88	.....
20888	Longhorn, 508164.....	Clark Bros., Windsor.....	7.03	6.88	.....
20467	Surety P. A. 22747.....	The Coles Co., Middletown.....	5.98	5.75	60.00
20513	Surety. P. R. R. 52412.....	The Coles Co., Middletown.....	5.80	5.75	60.00
21519	Surety. N. C. & St. L., 3166.....	The Coles Co., Middletown.....	5.81	5.75	50.00
	Ashcraft-Wilkinson Co., Atlanta, Ga.				
20573	Paramount. N. Y. C., 217460.....	The Coles Co., Middletown.....	6.00	5.76	60.00
21405	Paramount. 4577.....	Geo. S. Phelps & Co., Thomp- sonville.....	5.70	5.76	48.15
21406	Paramount. 90630.....	Geo. S. Phelps & Co., Thomp- sonville.....	5.81	5.76	48.15
21407	Paramount. 97602.....	Geo. S. Phelps & Co., Thomp- sonville.....	5.90	5.76	48.15
21502	Paramount.....	Station Agent from Geo. S. Phelps & Co., Thompson- ville.....	6.03	5.76	52.00
	F. W. Brodé Corp., Memphis, Tenn.				
21509	Owl Brand 36 per cent..	Station Agent from Bristol Grain & Supply Co., Bristol	5.42	5.75	55.00
21516	Owl Brand 43 per cent..	Station Agent from C. M. Beeman, Granby.....	6.84	6.70	60.90
	Buckeye Cotton Oil Co., Cincinnati, Ohio.				
21510	Buckeye Good C. S. Meal.....	Station Agent from G. S. Phelps & Co., Thomp- sonville.....	5.69	5.76	52.00
	Eastern Cotton Oil Co., Elizabeth City, N. C.				
21215	Ideal.....	L. Wetstone, Hartford.....	6.35	6.88	57.00

TABLE V. ANALYSES OF COTTONSEED MEAL—Continued.

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent Nitrogen		Cost per ton.
			Found.	Guaranteed	
	Humphreys-Godwin Co., Memphis, Tenn.				
20527	Bee. 31758.....	American Sumatra Tobacco Co., Bloomfield.....	6.76	6.58	.....
20531	Bee. 42022.....	American Sumatra Tobacco Co., Bloomfield.....	6.56	6.58	.....
20532	Bee. 32442.....	American Sumatra Tobacco Co., Bloomfield.....	6.65	6.58	.....
20533	Bee. 304470.....	American Sumatra Tobacco Co., Bloomfield.....	7.16	6.58	.....
20552	Bee. 173150.....	American Sumatra Tobacco Co., Bloomfield.....	6.95	6.58	.....
20556	Bee. 76518.....	American Sumatra Tobacco Co., Bloomfield.....	6.58	6.58	.....
20563	Bee. 31758.....	American Sumatra Tobacco Co., Bloomfield.....	6.82	6.58	.....
20592	Bee. 11031.....	American Sumatra Tobacco Co., Bloomfield.....	6.60	6.58	.....
20641	Bee. 34277.....	American Sumatra Tobacco Co., Bloomfield.....	6.84	6.58	.....
20839	Bull. C.B.&J. 134035.....	Spencer Bros., Inc., Suffield.....	7.00	6.87	\$59.00
20840	Bull. M. P. 27424.....	Spencer Bros., Inc., Suffield.....	6.95	6.87	59.00
20898	Bull. N. & W. 120204.....	Spencer Bros., Inc., Suffield.....	6.92	6.87	57.00
21005	Bull.....	Harold M. Newberry, East Windsor Hill.....	6.89	6.87	56.50
21053	Bull. N. Y. C. 252455.....	Spencer Bros., Inc., Suffield.....	6.83	6.87	59.00
21057	Bull.....	Harold M. Newberry, East Windsor Hill.....	6.38	6.87	56.50
21072	Bull. M. C. 94575.....	Henry Adams & Son, Suffield.....	7.15	6.87	57.00
21513	Bull.....	Station Agent from Geo. T. Soule, New Milford.....	7.00	6.87	60.00
21508	Danish.....	Station Agent from A.E. Hall, Wallingford.....	6.32	5.75	50.00
20528	Dixie, 39334.....	American Sumatra Tobacco Co., Bloomfield.....	6.84	6.56	.....
20529	Dixie, 120253.....	American Sumatra Tobacco Co., Bloomfield.....	6.46	6.56	.....
20530	Dixie, 40082.....	American Sumatra Tobacco Co., Bloomfield.....	5.96	6.56	.....
20551	Dixie, 48634.....	American Sumatra Tobacco Co., Bloomfield.....	6.44	6.56	.....
20553	Dixie, 34042.....	American Sumatra Tobacco Co., Bloomfield.....	6.65	6.56	.....
20554	Dixie, 174396.....	American Sumatra Tobacco Co., Bloomfield.....	6.28	6.56	.....
20555	Dixie, 302401.....	American Sumatra Tobacco Co., Bloomfield.....	6.59	6.56	.....
20557	Dixie, 1574.....	American Sumatra Tobacco Co., Bloomfield.....	6.28	6.56	.....

TABLE V. ANALYSES OF COTTONSEED MEAL—Continued.

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent Nitrogen.		Cost per ton.
			Found.	Guaranteed.	
	Humphreys-Godwin Co., Memphis, Tenn.				
20558	Dixie, 2673.....	American Sumatra Tobacco Co., Bloomfield.....	6.58	6.56	.....
20559	Dixie, 20228.....	American Sumatra Tobacco Co., Bloomfield.....	6.67	6.56	.....
20560	Dixie, 866.....	American Sumatra Tobacco Co., Bloomfield.....	6.29	6.56	.....
20561	Dixie, 85231.....	American Sumatra Tobacco Co., Bloomfield.....	6.53	6.56	.....
20562	Dixie, 26101.....	American Sumatra Tobacco Co., Bloomfield.....	6.14	6.56	.....
20576	Dixie, 19903.....	American Sumatra Tobacco Co., Bloomfield.....	6.62	6.56	.....
20579	Dixie, 21873.....	American Sumatra Tobacco Co., Bloomfield.....	6.56	6.56	.....
20580	Dixie, 12006.....	American Sumatra Tobacco Co., Bloomfield.....	6.84	6.56	.....
20582	Dixie, 28527.....	American Sumatra Tobacco Co., Bloomfield.....	6.50	6.56	.....
20585	Dixie, 29824.....	American Sumatra Tobacco Co., Bloomfield.....	6.59	6.56	.....
20586	Dixie, 563728.....	American Sumatra Tobacco Co., Bloomfield.....	6.80	6.56	.....
20588	Dixie, 256339.....	American Sumatra Tobacco Co., Bloomfield.....	6.44	6.56	.....
20589	Dixie, 29854.....	American Sumatra Tobacco Co., Bloomfield.....	6.58	6.56	.....
20590	Dixie, 205778.....	American Sumatra Tobacco Co., Bloomfield.....	6.26	6.56	.....
20591	Dixie, 13800.....	American Sumatra Tobacco Co., Bloomfield.....	6.52	6.56	.....
20613	Dixie, 174396.....	American Sumatra Tobacco Co., Bloomfield.....	6.15	6.56	.....
20614	Dixie, 26101.....	American Sumatra Tobacco Co., Bloomfield.....	6.71	6.56	.....
20615	Dixie, 48634.....	American Sumatra Tobacco Co., Bloomfield.....	6.54	6.56	.....
20616	Dixie, 4965.....	American Sumatra Tobacco Co., Bloomfield.....	6.50	6.56	.....
21617	Dixie, 1574.....	American Sumatra Tobacco Co., Bloomfield.....	6.15	6.56	.....
20618	Dixie, 866.....	American Sumatra Tobacco Co., Bloomfield.....	6.30	6.56	.....
20619	Dixie, 154534.....	American Sumatra Tobacco Co., Bloomfield.....	6.78	6.56	.....
20620	Dixie, 40082.....	American Sumatra Tobacco Co., Bloomfield.....	6.53	6.56	.....

TABLE V. ANALYSES OF COTTONSEED MEAL—Continued.

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent Nitrogen.		Cost per ton.
			Found.	Guaranteed.	
	Humphreys-Godwin Co., Memphis, Tenn.				
20621	Dixie, 64985.....	American Sumatra Tobacco Co., Bloomfield.....	6.43	6.56	.....
20622	Dixie, 67498.....	American Sumatra Tobacco Co., Bloomfield.....	6.50	6.56	.....
20635	Dixie, 112102.....	American Sumatra Tobacco Co., Bloomfield.....	6.65	6.56	.....
20636	Dixie, 793.....	American Sumatra Tobacco Co., Bloomfield.....	6.92	6.56	.....
20637	Dixie, 56540.....	American Sumatra Tobacco Co., Bloomfield.....	6.57	6.56	.....
20638	Dixie, 23626.....	American Sumatra Tobacco Co., Bloomfield.....	6.31	6.56	.....
20639	Dixie, 20158.....	American Sumatra Tobacco Co., Bloomfield.....	6.72	6.56	.....
20640	Dixie, 28103.....	American Sumatra Tobacco Co., Bloomfield.....	7.11	6.56	.....
20642	Dixie, 27910.....	American Sumatra Tobacco Co., Bloomfield.....	6.70	6.56	.....
20643	Dixie, 88310.....	American Sumatra Tobacco Co., Bloomfield.....	6.68	6.56	.....
20644	Dixie, 47781.....	American Sumatra Tobacco Co., Bloomfield.....	6.77	6.56	.....
20645	Dixie, 17844.....	American Sumatra Tobacco Co., Bloomfield.....	6.76	6.56	.....
20651	Dixie, 39499.....	American Sumatra Tobacco Co., Bloomfield.....	6.73	6.56	.....
20652	Dixie, 42810.....	American Sumatra Tobacco Co., Bloomfield.....	6.68	6.56	.....
20653	Dixie, 3873.....	American Sumatra Tobacco Co., Bloomfield.....	6.78	6.56	.....
20654	Dixie, 95922.....	American Sumatra Tobacco Co., Bloomfield.....	6.78	6.56	.....
20655	Dixie, 110197.....	American Sumatra Tobacco Co., Bloomfield.....	6.67	6.56	.....
20656	Dixie, 205778.....	American Sumatra Tobacco Co., Bloomfield.....	6.56	6.56	.....
20657	Dixie, 256339.....	American Sumatra Tobacco Co., Bloomfield.....	6.40	6.56	.....
20672	Dixie, 248050.....	American Sumatra Tobacco Co., Bloomfield.....	6.72	6.56	.....
20673	Dixie, 21436.....	American Sumatra Tobacco Co., Bloomfield.....	6.62	6.56	.....
20674	Dixie, 27643.....	American Sumatra Tobacco Co., Bloomfield.....	6.74	6.56	.....
20675	Dixie, 43404.....	American Sumatra Tobacco Co., Bloomfield.....	6.50	6.56	.....

TABLE V. ANALYSES OF COTTONSEED MEAL—Continued.

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent Nitrogen.		Cost per ton.
			Found.	Guaranteed	
	Humphreys-Godwin Co., Memphis, Tenn.				
20676	Dixie, 81041.....	American Sumatra Tobacco Co., Bloomfield.....	6.59	6.56	.....
20677	Dixie, 203924.....	American Sumatra Tobacco Co., Bloomfield.....	6.54	6.56	.....
20678	Dixie, 220940.....	American Sumatra Tobacco Co., Bloomfield.....	7.11	6.56	.....
20717	Dixie, 238672.....	American Sumatra Tobacco Co., Bloomfield.....	6.54	6.56	.....
20718	Dixie, 302630.....	American Sumatra Tobacco Co., Bloomfield.....	6.56	6.56	.....
20719	Dixie, 99325.....	American Sumatra Tobacco Co., Bloomfield.....	6.38	6.56	.....
20720	Dixie, 18300.....	American Sumatra Tobacco Co., Bloomfield.....	6.60	6.56	.....
20721	Dixie, 104508.....	American Sumatra Tobacco Co., Bloomfield.....	6.58	6.56	.....
20722	Dixie, 121633.....	American Sumatra Tobacco Co., Bloomfield.....	6.36	6.56	.....
20723	Dixie, 238316.....	American Sumatra Tobacco Co., Bloomfield.....	6.31	6.56	.....
20724	Dixie, 305782.....	American Sumatra Tobacco Co., Bloomfield.....	6.62	6.56	.....
20725	Dixie, 2813.....	American Sumatra Tobacco Co., Bloomfield.....	6.54	6.56	.....
20726	Dixie, 423777.....	American Sumatra Tobacco Co., Bloomfield.....	6.29	6.56	.....
20727	Dixie, 242674.....	American Sumatra Tobacco Co., Bloomfield.....	6.87	6.56	.....
20728	Dixie, 40103.....	American Sumatra Tobacco Co., Bloomfield.....	6.70	6.56	.....
20729	Dixie, 24458.....	American Sumatra Tobacco Co., Bloomfield.....	6.59	6.56	.....
20730	Dixie, 15534.....	American Sumatra Tobacco Co., Bloomfield.....	6.41	6.56	.....
20731	Dixie, 229698.....	American Sumatra Tobacco Co., Bloomfield.....	6.27	6.56	.....
20732	Dixie, 122719.....	American Sumatra Tobacco Co., Bloomfield.....	6.74	6.56	.....
20733	Dixie, 50369.....	American Sumatra Tobacco Co., Bloomfield.....	6.57	6.56	.....
20757	Dixie, 55296.....	American Sumatra Tobacco Co., Bloomfield.....	6.37	6.56	.....
20777	Dixie, 21239.....	American Sumatra Tobacco Co., Bloomfield.....	6.52	6.56	.....
20778	Dixie, 236413.....	American Sumatra Tobacco Co., Bloomfield.....	6.52	6.56	.....

TABLE V. ANALYSES OF COTTONSEED MEAL—Continued.

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent Nitrogen.		Cost per ton.
			Found.	Guaranteed.	
	Humphreys-Godwin Co., Memphis, Tenn.				
20779	Dixie, 20650.....	American Sumatra Tobacco Co., Bloomfield.....	6.50	6.56	.....
20780	Dixie, 191653.....	American Sumatra Tobacco Co., Bloomfield.....	6.56	6.56	.....
20781	Dixie, 35903.....	American Sumatra Tobacco Co., Bloomfield.....	6.57	6.56	.....
20782	Dixie, 107284.....	American Sumatra Tobacco Co., Bloomfield.....	6.38	6.56	.....
20783	Dixie, 21049.....	American Sumatra Tobacco Co., Bloomfield.....	6.61	6.56	.....
20794	Dixie, 25137.....	American Sumatra Tobacco Co., Bloomfield.....	6.59	6.56	.....
20795	Dixie, 73426.....	American Sumatra Tobacco Co., Bloomfield.....	6.68	6.56	.....
20796	Dixie, 3027.....	American Sumatra Tobacco Co., Bloomfield.....	6.68	6.56	.....
20797	Dixie, 45769.....	American Sumatra Tobacco Co., Bloomfield.....	6.67	6.56	.....
20798	Dixie, 21710.....	American Sumatra Tobacco Co., Bloomfield.....	6.66	6.56	.....
20799	Dixie, 194528.....	American Sumatra Tobacco Co., Bloomfield.....	6.62	6.56	.....
20800	Dixie, 70649.....	American Sumatra Tobacco Co., Bloomfield.....	6.57	6.56	.....
20844	Dixie, 103931.....	Hatheway & Steane, Hartford	6.78	6.56	.....
20847	Dixie, 140952.....	Hatheway & Steane, Hartford	6.42	6.56	\$55.75
20848	Dixie, 38058.....	Hatheway & Steane, Hartford	6.38	6.56	55.75
20850	Dixie, 17640.....	Hatheway & Steane, Hartford	6.59	6.56	.....
20870	Dixie, 5622.....	Hatheway & Steane, Hartford	6.55	6.56	.....
20874	Dixie, 112821.....	Hatheway & Steane, Hartford	6.71	6.56	.....
20931	Dixie, 223492.....	American Sumatra Tobacco Co., Bloomfield.....	6.37	6.56	.....
20932	Dixie, 13384.....	American Sumatra Tobacco Co., Bloomfield.....	6.30	6.56	.....
20933	Dixie, 11031.....	American Sumatra Tobacco Co., Bloomfield.....	6.58	6.56	.....
20969	Dixie, 1549.....	Hatheway & Steane, Hartford	6.71	6.56	55.75
21062	Dixie.....	Station Agent from J. P. Nor- ton, Broad Brook.....	6.60	6.56	54.50
21533	Dixie.....	Station Agent from Fassler & Silberman, Hartford.....	6.50	6.56	.....
21534	Dixie.....	Station Agent from Fassler & Silberman, Hartford.....	6.64	6.56	.....
21535	Dixie.....	Station Agent from Fassler & Silberman, Hartford.....	6.14	6.56	.....

TABLE V. ANALYSES OF COTTONSEED MEAL—Continued.

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent Nitrogen.		Cost per ton.
			Found.	Guaranteed.	
	Humphreys-Godwin Co., Memphis, Tenn.				
21536	Dixie.....	Station Agent from Fassler & Silberman, Hartford.....	6.61	6.56	.....
21538	Dixie.....	Station Agent from Fassler & Silberman, Hartford.....	6.42	6.56	.....
20587	Owl. 41, 110197.....	American Sumatra Tobacco Co., Bloomfield.....	6.31	6.56	.....
20577	111894.....	American Sumatra Tobacco Co., Bloomfield.....	6.76	.....	.....
20578	90546.....	American Sumatra Tobacco Co., Bloomfield.....	6.14	.....	.....
20581	194870.....	American Sumatra Tobacco Co., Bloomfield.....	6.44	6.56	.....
20583	35004.....	American Sumatra Tobacco Co., Bloomfield.....	6.58	6.56	.....
20584	36735.....	American Sumatra Tobacco Co., Bloomfield.....	6.30	6.56	.....
20885	28201.....	American Sumatra Tobacco Co., Bloomfield.....	6.15	6.56	.....
20886	109077.....	American Sumatra Tobacco Co., Bloomfield.....	6.36	6.56	.....
	L. B. Lovitt & Co., Memphis, Tenn.				
21066	Thirty-six.....	Station Agent from W. C. Child, Woodstock.....	5.80	5.75	\$41.50
21512	Neal's Choice.....	Station Agent from Willimantic Grain Co., Willimantic.....	7.04	6.88	60.00
	Lyle & Lyle, Huntsville, Alabama.				
20090	Economy, P. R. R., 83450.....	The Coles Company, Middletown.....	5.77	5.76	53.00
	Marianna Cotton Oil Co., Marianna, Ark.				
21107	White Mule, 41%.....	Station Agent from C. M. Beeman, Granby.....	6.59	6.58	57.00
21514	White Mule, 43%.....	Station Agent from Geo. E. Ackley Co., New Milford.....	7.00	6.88	60.00
21517	White Mule, 41%.....	Station Agent from E. H. Rollins, Granby.....	6.57	6.58	57.00
21715	White Mule Brand.....	P. Schwartz Co., New London	5.85	5.75	53.00

TABLE V. ANALYSES OF COTTONSEED MEAL—*Concluded.*

Station No.	Manufacturer or Jobber, Car No. or Mark.	Purchased, Sampled or Sent by	Per cent Nitrogen.		Cost per ton.
			Found.	Guaranteed.	
	W. C. Nothern, Memphis, Tenn.				
20631	Bee. S. P. 69010.....	E. N. Austin, Suffield.....	6.23	6.88	\$58.00
20743	Bee.....	Station Agent from E. N. Austin, Suffield.....	6.63	6.88	58.00
	Olds & Whipple, Hartford.				
20834	41903.....	L. B. Haas & Co., Hartford..	6.77	6.88	45.15
20835	41903.....	L. B. Haas & Co., Hartford..	6.99	6.88	45.15
20836	16261.....	L. B. Haas & Co., Hartford..	7.02	6.99	58.23
20837	80685.....	L. B. Haas & Co., Hartford..	6.95	6.99	58.23
20845	35645.....	Hatheway & Steane, Hartford	6.70	6.56	.....
20846	130210.....	Hatheway & Steane, Hartford	6.67	6.56	.....
20849	16035.....	Hatheway & Steane, Hartford	6.56	6.56	.....
	Pheonix Cotton Oil Co., Memphis, Tenn.				
21052	Phoenix, C. M. & St. P. 701595.....	Spencer Bros., Inc., Suffield..	6.86	6.87	58.00
21216	Phoenix, S. F. 130089.....	L. Wetstone, Hartford.....	6.62	6.87	57.00
21217	Phoenix, N. Y. C. 230924.....	L. Wetstone, Hartford.....	6.91	6.87	57.00
21218	Phoenix. Erie 110189.....	L. Wetstone, Hartford.....	6.83	6.87	57.00
21314	Phoenix.....	E. N. Austin, Suffield.....	6.83	6.87	55.00
21551	Phoenix.....	Station Agent from E. N. Austin, Suffield.....	6.74	6.87	60.00
	The Rogers & Hubbard Co., Portland.				
21507	.....	Station Agent from Factory.	6.03	5.75	.....
	A. C. Westervelt & Co., Memphis, Tenn.				
21518	Sun.....	Station Agent from Geo. W. Case, New Hartford.....	5.58	5.75	56.00
	Manufacturer Unknown				
20690	104578.....	Conn. Sumatra Tobacco Co., Buckland.....	6.99	.....	.....
20691	10064.....	Conn. Sumatra Tobacco Co., Buckland.....	6.52	.....	.....
20707	16345.....	Conn. Sumatra Tobacco Co., Buckland.....	6.75	.....	.....
20708	28887.....	Conn. Sumatra Tobacco Co., Buckland.....	6.73	.....	.....
19962	41961 A. C. L.....	The Coles Company, Middle- town.....	5.77	.....	.....

LINSEED MEAL.

Three samples, all purchased from Olds & Whipple, Inc., Hartford, were submitted by Hatheway & Steane, Hartford.

The samples were 20880, 20967 and 20968 and were found to contain 5.20, 5.27 and 5.16 per cent. of nitrogen respectively. The selling price was \$54.50 per ton, at which price nitrogen cost about 52 cents per pound. This estimate, however, is based upon very limited data; probably the use of linseed meal in fertilizers has not been extensive.

II. RAW MATERIALS CHIEFLY VALUABLE FOR PHOSPHORIC ACID.

RAW ROCK PHOSPHATE.

One sample was analyzed as follows:

21531. Mitchell's Phosphoflour. Sold by W. L. Mitchell, New Haven. Stock of J. W. Alsop, Avon.

Analysis:

Station No.....	21531
Total phosphoric acid:	
found.....	29.60%
guaranteed.....	28.00

PRECIPITATED BONE PHOSPHATE.

Sixteen samples of precipitated bone were analyzed and analyses are given in Table VI.

So-called precipitated bone phosphate is a by-product in the manufacture of gelatin. Bones are treated with acid to extract mineral substances and when this acid solution is treated with milk of lime the phosphorus is precipitated largely or entirely as di-calcium phosphate, which is the precipitated bone phosphate of commerce. Phosphoric acid in this material is practically all "available."

The samples examined this year have equaled or exceeded their guaranties in all cases and the cost of "available" phosphoric acid at the average of prices quoted (\$54.65), has been 6.9 cents per pound.

TABLE VI. ANALYSES OF PRECIPITATED BONE PHOSPHATE.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Phosphoric Acid.			
			Total.	Citrate-insoluble.	Found.	Guaranteed.
				"Available."		
21067	<i>Sampled by Station.</i> American Agricultural Chemical Co., New York City.	J. P. Norton, Broad Brook.	0.10	36.50	36.00	36.00
21042	Apothecaries Hall Co., Waterbury	Sampled at Factory, East Windsor.	0.60	40.70	40.10	36.00
20943	Olds & Whipple, Inc., Hartford...	Sampled at Factory.	0.90	39.00	38.10	38.00
20758	<i>Sampled by Purchaser.</i> American Glue Co., Boston, Mass.	American Sumatra Tobacco Co., Bloomfield	1.21	40.76	39.55	38.00
20453	H. Fasting, New York.	American Sumatra Tobacco Co., Bloomfield	0.05	38.94	38.89	38.00
20454	H. Fasting, New York.	American Sumatra Tobacco Co., Bloomfield	0.07	38.94	38.87	38.00
20455	H. Fasting, New York.	American Sumatra Tobacco Co., Bloomfield	0.10	38.96	38.86	38.00
20456	H. Fasting, New York.	American Sumatra Tobacco Co., Bloomfield	0.04	38.96	38.92	38.00
20457	H. Fasting, New York.	American Sumatra Tobacco Co., Bloomfield	0.03	39.04	39.01	38.00
20458	H. Fasting, New York.	American Sumatra Tobacco Co., Bloomfield	none	39.32	39.32	38.00
20602	H. Fasting, New York.	American Sumatra Tobacco Co., Bloomfield	0.46	41.80	41.34	38.00
20977	Olds & Whipple, Hartford.	Hatheway & Steane, Hartford.	0.45	38.50	38.05	38.00
21008	Olds & Whipple, Inc., Hartford.	Harold M. Newberry, East Windsor Hill...	1.10	40.15	39.05	38.00
21060	Olds & Whipple, Inc., Hartford...	Harold M. Newberry, East Windsor Hill...	3.60	45.25	41.65	38.00
21246	Olds & Whipple, Inc., Hartford...	Harold M. Newberry, East Windsor Hill...	1.95	42.20	40.25	38.00
20710	Conn. Sumatra Tobacco Co., Buckland...	Conn. Sumatra Tobacco Co., Buckland...	0.40	41.88	41.48	38.00

Cost per unit of
phosphate acid.

DISSOLVED ROCK PHOSPHATE OR ACID PHOSPHATE.

Twenty-one samples were examined and analyses are given in Table VII.

This material is made by treating rock phosphate with sulphuric acid which results in a conversion of the phosphorus largely into "available" form. In acid phosphates most of the available phosphoric acid is soluble in water.

This commercial product is generally guaranteed to contain 16 per cent. of phosphoric acid in "available" forms, i. e., soluble in water and soluble in ammonium citrate solution. All of the samples examined during the past season substantially met or exceeded their guaranties except 21287 which was deficient by 0.48 per cent. No. 21257 contained the guaranteed amount of available phosphoric acid (10 per cent.), but a considerable proportion of the total was in insoluble form.

The prices quoted for "acid phosphate" ranged from \$16.00 to \$30.00, the average being \$23.45. At these prices the cost per pound of "available" phosphoric acid has been from 4.9 to 9.5 cents, the average being 7.2 cents.

TABLE VII. ANALYSES OF ACID PHOSPHATE.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Phosphoric Acid.				Cost per ton.	"Available" phosphoric acid costs per pound.	Station No.			
			Citrato-insoluble.		Guaranteed.	"Available"						
			Total.	Found.								
<i>Sampled by Station:</i>												
20988	American Agricultural Chemical Co., New York	J. H. Paddock, Wallingford	0.83	17.33	16.50	16	\$28.00	8.5	20988			
20909	Apothecaries Hall Co., Waterbury	Sampled at Factory	0.60	17.03	16.43	16	25.00	7.6	20909			
21044	Armour Fertilizer Works, New York	Rockville Grain & Coal Co., Rockville	0.54	16.39	15.85	16	30.00	9.5	21044			
21324	Armour Fertilizer Works, New York	A. E. Shedd, Norwich	0.59	16.61	16.02	16	16.50	5.1	21324			
20928	Berkshire Fertilizer Co., Bridgeport	Sampled at Factory	0.53	17.60	17.07	16	24.70	7.2	20928			
21180	Bowker Fertilizer Co., New York	C. A. Templeton, Inc., Waterbury	0.93	17.28	16.35	16	25.00	7.6	21180			
21287	E. D. Chittenden Co., Bridgeport	J. E. Stoddard, Abington	0.61	16.13	15.52	16	26.00	8.4	21287			
21296	E. B. Clark Seed Co., Milford	Geo. R. Russell, Branford	0.20	16.85	16.65	16	19.50	5.9	21296			
21201	Coe-Mortimer Co., New York	Morrison & Dunham, Bethel	1.05	17.13	16.08	16	29.00	9.0	21201			
20920	Consolidated Bending Co., Boston, Mass.	Sampled at Factory, New Haven	0.08	17.68	17.60	16	....	....	20920	
21292	Eastern States Farmers' Exchange, Springfield, Mass.	G. R. Stannard, Branford	0.18	16.73	15.95	16	26.50	8.3	21292			
21257	W. L. Mitchell, New Haven	A. E. Shedd, Norwich	11.35	23.45	12.10	10	18.25	7.5	21257			
21532	W. L. Mitchell, New Haven	Hanson Bros., New Haven	1.20	17.50	16.30	16	19.00	5.8	21532			
21396	Nitrate Agencies Co., New York	W. E. Coe, Stamford	1.35	17.40	16.05	16	21.85	6.8	21396			
20944	Olds & Whipple, Inc., Hartford	Sampled at Factory	0.45	16.55	16.10	16	21.85	6.8	20944			

TABLE VII. ANALYSES OF ACID PHOSPHATE—Concluded.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Phosphoric Acid.					
			Total.	Citrate-insoluble.	Found.	Guaranteed.	“Available”	Cost per ton.
20939	The Rogers & Hubbard Co., Portland.	Sampled at Factory.....	0.10	17.53	17.43	16	\$23.50	6.7
21478	F. S. Royster Guano Co., Baltimore, Md.	A. D. Bridges' Sons, Inc., Hazardville	1.20	17.25	16.05	16	28.00	8.7
20950	Sanderson Fertilizer & Chemical Co., New Haven.	Sampled at Factory.....	0.78	17.68	16.90	16	21.91	6.5
21493	Virginia-Carolina Chemical Co., New York.	F. A. Beckwith, Niantic.....	1.08	18.03	16.95	16	....	24.93
21118	Wilcox Fertilizer Co., Mystic.....	Sampled at Factory.....	0.18	17.50	17.32	17	....	21.18
<i>Sampled by Purchaser:</i>								
21157	L. T. Frisbie Co., New Haven ..	The A. E. Plant Sons Co., Branford	0.13	16.38	16.25	16	16.00	4.9

III. RAW MATERIALS CONTAINING POTASH AS THE CHIEF ACTIVE INGREDIENT.

Analyses of these materials are given in Tables VIII and IX.

CARBONATE OF POTASH.

Four samples, all drawn by the purchasers, were examined.

This material is generally from 88 to 95 per cent pure and contains from 60 to 65 per cent of actual potash (K_2O). Of the samples examined this year two were somewhat below average quality. No prices were quoted to us for this source of potash.

MURIATE OF POTASH.

Eight samples were analyzed all but one of which were drawn by the Station agent.

This is the potash salt which is chiefly imported for agricultural purposes and is about 80 per cent pure, equivalent to 50.5 per cent of actual potash (K_2O). Because it readily absorbs moisture it is frequently guaranteed 48 per cent potash.

All the samples examined exceeded their guaranties except **21301** which was somewhat deficient. *So far as prices are known the cost per pound of actual potash ranged from 4 to 6.2 cents, the average being 5.0 cents.*

HIGH GRADE SULPHATE OF POTASH.

Thirteen samples were examined: one, however, **20751**, was merely tested qualitatively to determine whether or not it was a sulphate.

The commonest grade of this potash salt is the one containing about 48 per cent of actual potash or about 90 per cent sulphate of potash. Nos. **21722** and **21009** were the only samples which failed to satisfy their guaranties.

No. **21253** contained less than 48 per cent but no statement of guaranty was given. This sample contained a little ammonia, probably in the form of ammonium sulphate. At the price given us, potash in this lot cost 7.9 cents per pound, which is the extreme figure found this year. *Excluding this sample, the cost per pound of potash from this source has ranged from 3.9 to 6.1 cents and averaged 5.3 cents.*

KAINIT.

Only one sample was analyzed. *It fully met its guaranty and at the price quoted (\$20.00), potash cost the purchaser 8 cents per pound.*

The potash in kainit is combined largely or entirely with chlorine and a considerable amount of common salt (sodium chloride) is also present. For this reason the use of kainit is avoided in mixed fertilizers intended for tobacco in this State where wrapper leaf is largely grown.

TABLE VIII. ANALYSES OF POTASH SALTS.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash.		Cost per ton.	Potash costs per pound.	Station No.					
			Found.	Guaranteed.								
Carbonate of Potash.												
<i>Sampled by Purchaser:</i>												
20966	Olds & Whipple, Inc., Hartford..	Hatheway & Steane, Hartford..	63.92	63.92	.....	.....	20966			
20759	Suberios Co., New York City..	American Sumatra Tobacco Co., Bloomfield	64.44	64.44	.....	.....	20759			
20734	86861.....	American Sumatra Tobacco Co., Bloomfield	56.68	56.68	.....	.....	20734			
20760	6469.....	American Sumatra Tobacco Co., Bloomfield	57.92	57.92	.....	.....	20760			
Muriate of Potash.												
<i>Sampled by Station:</i>												
21269	American Agricultural Chemical Co., New York.....	W. B. Martin, Rockville.....	49.73	48.00	\$54.00	5.4	21269					
21040	Apothecaries Hall Co., Waterbury.....	Sampled at Factory.....	52.26	50.00	65.00	6.2	21040					
21168	Armour Fertilizer Co., New York City.....	John O. Fox, Putnam.....	48.50	48.00	55.00	5.7	21168					
21325	Armour Fertilizer Co., New York City.....	A. E. Shedd, Norwich.....	49.98	48.00	39.50	4.0	21325					
20927	Berkshire Fertilizer Co., Bridgeport.....	Sampled at Factory.....	53.30	50.00	45.00	4.2	20927					
20925	Consolidated Rendering Co., Boston, Mass.....	Sampled at Factory, New Haven.....	52.60	50.00	.....	.....	20925			
21301	Eastern States Farmers' Exchange, Springfield, Mass.....	Minor Ives, So. Meriden.....	46.06	50.00	.....	.....	21301			
21160	L. T. Frishie Co., New Haven..	A. E. Plant Sons Co., Branford.....	51.67	48.00	43.00	4.2	21160					

TABLE VIII. ANALYSES OF POTASH SALTS—Concluded.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash.		Cost per ton.	Potash costs per pound.	Station No.					
			Found.	Guaranteed.								
High Grade Sulphate of Potash.												
<i>Sampled by Station:</i>												
21068	Apothecaries Hall Co., Waterbury	J. P. Norton, Broad Brook.....	48.46	48.00	\$53.00	5.5	21068					
20946	Olds & Whipple, Inc., Hartford.	Sampled at Factory.....	49.42	48.00	53.00	5.4	20946					
20995	American Agricultural Chemical Co., New York.	Geo. S. Phelps & Co., Thompsonville.....	50.05	48.00	60.00	6.0	20995					
20953	Apothecaries Hall Co., Waterbury	Sampled at Factory.....	50.80	48.00	55.00	5.4	20953					
20929	Berkshire Fertilizer Co., Bridgeport.	Sampled at Factory.....	50.80	48.00	55.00	5.4	20929					
20921	Consolidated Rendering Co., Boston, Mass.	Sampled at Factory, New Haven.....	49.90	48.00	.....	.....	20921			
21400	Nitrate Agencies Co., New York City	E. N. Austin, Suffield.....	49.12	48.00	60.00	6.1	21400					
21722	Rogers & Hubbard Co., Portland	Sampled at Factory.....	44.58	48.00	.....	.....	21722			
<i>Sampled by Purchaser:</i>												
20742	Apothecaries Hall Co., Waterbury	J. E. Shepard, So. Windsor Hill.....	48.88	48.00	48.00	4.9	20742					
21009	Olds & Whipple, Inc., Hartford.	Harold M. Newberry, East Windsor Hill.....	45.80	48.00	36.10	3.9	21009					
21247	Olds & Whipple, Inc., Hartford.	Harold M. Newberry, East Windsor Hill.....	50.50	48.00	53.20	5.3	21247					
21253	.....	Walter Clark, Norwich, Conn.	46.64	.....	74.00	7.9	21253			
Kainit.												
<i>Sampled by Station:</i>												
21539	Consumers Chemical Corp., New York City.	E. C. Chapman, North Haven.....	12.57	12.40	20.00	8.0	21539					

TABLE IX. ANALYSES OF DOUBLE MANURE SALTS.

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.	Potash.		Guaranteed.	Magnesia.	Chlorine.	Cost per ton.	Potash costs per pound.	Station No.
			Found.	%						
<i>Sampled by Station:</i>										
21271	American Agricultural Co., New York.	W. H. Carrier, Glastonbury...	26.21	25.00	9.00	2.28	\$42.00	8.0	21271	
20930	Berkshire Fertilizer Co., Bridgeport	Sampled at Factory	26.84	26.00	9.99	2.33	32.00	5.8	20930	
20947	Olds & Whipple, Inc., Hartford . . .	Sampled at Factory	27.50	26.00	9.49	2.08	32.00	5.8	20947	
20851	Olds & Whipple, Inc., Hartford . . .	Hatheway & Steane, Hartford . .	24.24	26.00	9.60	4.32	32.00	4.32	20851	
20852	Olds & Whipple, Inc., Hartford . . .	Hatheway & Steane, Hartford . .	36.22	26.00	6.08	4.83	32.00	4.83	20852	
20863	Olds & Whipple, Inc., Hartford . . .	J. E. Shepard, South Windsor . .	30.26	26.00	11.66	2.84	28.82	4.8	20868	
20877	Olds & Whipple, Inc., Hartford . . .	Hatheway & Steane, Hartford . .	27.14	26.00	12.44	1.31	32.00	1.31	20877	
20878	Olds & Whipple, Inc., Hartford . . .	Hatheway & Steane, Hartford . .	26.84	26.00	8.46	4.10	32.00	4.10	20878	
20879	Olds & Whipple, Inc., Hartford . . .	Hatheway & Steane, Hartford . .	39.88	26.00	4.65	3.36	32.00	3.36	20879	
20978	Olds & Whipple, Inc., Hartford . . .	Hatheway & Steane, Hartford . .	34.86	26.00	5.19	3.01	32.00	3.01	20978	
21061	Olds & Whipple, Inc., Hartford . . .	Harold M. Newberry, East Windsor Hill	25.71	26.00	13.50	1.87	36.10	7.00	21061	

DOUBLE SULPHATE OF POTASH AND MAGNESIA OR "DOUBLE MANURE SALTS."

Eleven samples were analyzed. Three were sampled by the Station agent and eight were submitted by the purchasers.

This salt was a familiar source of potash before the war. A few samples were found among our dealers in 1922 and a larger number were collected this year. Potash from this source is favored by tobacco growers not only because it is relatively free from chlorine but because it also carries a considerable amount of magnesium.

Last year a product called "Manure Salts" appeared on the market which was mistaken by some purchasers for the "Double Sulphate" or "Double Manure Salts." It was found that the "Manure Salts" was quite a different article; it contained much chlorine and little magnesia. No samples of the product were found during the past season.

Potash in the double sulphate is generally guaranteed at 26 per cent and the samples examined have exceeded that figure except in two cases *viz.*, 20851 and 21061, where deficiencies of 1.76 and 0.29 per cent respectively were found. Samples 20852, 20879, 20978 and probably also 20868 contained high percentages of potash due to accidental mixture with high grade sulphate.

Prices are not available in all cases but, excluding 20868 for the reason just given, the range has been from 5.8 to 8.0 cents per pound for actual potash. The average, excluding the four abnormally high samples, based upon the average of three prices is 7 cents per pound.

IV. RAW MATERIALS CONTAINING NITROGEN AND POTASH.

Two samples of "Nitrapo", Nos. 20648 and 21401, both purchased from the Nitrates Agencies Co., New York, by E. N. Austin, Suffield, were analyzed. One of the samples was drawn by the Station agent and the other was submitted by the purchaser.

Two samples called Nitrate of Potash were examined but they were not pure nitrate of potash, but "Nitrapo" or material of the same type. One of these, 20954, was sampled by the Station agent from the stock of Apothecaries Hall Co., Waterbury. The other, 20610, was submitted by H. M. Rogers, Southington.

Analyses are as follows:

TABLE X. ANALYSES OF "NITRAPO".

Station No.	20648	21401	20954	20610
	%	%	%	%
Nitrogen:				
found	14.88	14.84	14.80	15.28
guaranteed	14.80	14.80	15.00	.....
Potash:				
found	15.67	15.01	14.07	9.49
guaranteed	15.00	15.00	12.00	.....

V. RAW MATERIALS CONTAINING NITROGEN AND PHOSPHORIC ACID.

DRY GROUND FISH.

Forty-nine samples of dry ground fish have been analyzed during the year. Of these seventeen were sampled by the Station agent and thirty-two were submitted by purchasers. Analyses are given in Table XI.

This material is generally guaranteed to contain 8.23 per cent of nitrogen and 5 to 6 per cent of phosphoric acid. In a number of cases guaranties were not furnished, but in none of these were the nitrogen and phosphoric acid found less than the amounts usually guaranteed. Of those samples with guaranties, eight were deficient in nitrogen by amounts exceeding 0.1 per cent. The deficient samples were as follows:

Station No.	Deficiency in Nitrogen
21266	0.21%
21219	0.17
20436	0.84
20437	0.17
20439	0.26
20564	0.22
20565	0.12
20791	0.14

None of the samples were deficient in phosphoric acid.

The price has varied between the rather wide limits of \$58.00 and \$80.00 only one quotation of the high figure being recorded. The average of prices quoted confidentially or otherwise, is \$64.90.

The averages for nitrogen and phosphoric acid are 8.64 and 7.86 per cent respectively which makes the cost per pound of nitrogen 31.5 cents, allowing 6 cents per pound for total phosphoric acid.

CHLORINE CONTENT OF DRY GROUND FISH.

Chlorine was determined in forty-eight of the samples examined this year. Two samples, 20704 and 21402 were found to contain 3.25 per cent and 2.63 per cent chlorine respectively. Excluding these two, the remaining samples may be summarized as follows:

Maximum	.....	0.74%
Minimum	.....	0.14
Average	.....	0.25

The salt content of this product does not appear to be a matter of serious consideration, at least so far as the domestic product is concerned. We understand that fish manures from foreign sources may run higher in this particular, but we have no information as to whether or not the two samples already mentioned which contained excessive amounts of salt were imported products.

TABLE XI. ANALYSES OF

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.
	<i>Sampled by Station:</i>	
21071	American Agricultural Chemical Co., New York.....	A. E. Potwine, Warehouse Pt....
21266	American Agricultural Chemical Co., New York.....	J. P. Norton, Broad Brook.....
20961	Apothecaries Hall Co., Waterbury.	Sampled at factory, East Windsor.....
20542	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20543	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20544	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20907	Berkshire Fertilizer Co., Bridgeport	Sampled at Factory.....
21198	E. D. Chittenden Co., Bridgeport.	E. J. Bantle, Glastonbury.....
20924	L. T. Frisbie Co., New Haven.....	Sampled at Factory.....
21402	Nitrate Agencies Co., New York..	E. N. Austin, Suffield.....
20945	Olds & Whipple, Inc., Hartford....	Sampled at Factory.....
21032	Olds & Whipple, Inc., Hartford....	J. E. Shepard, South Windsor.....
21537	Olds & Whipple, Inc., Hartford....	Fassler & Silberman, Hartford.....
20938	Rogers & Hubbard Co., Portland..	Sampled at Factory.....
21470	F. S. Royster Guano Co., Baltimore	O. R. Morgan, Glastonbury.....
21219	Sanderson Fertilizer & Chemical Co., New Haven.....	G. A. Frink, Wapping.....
20958	Wilcox Fertilizer Co., Mystic.....	Spencer Bros., Inc., Suffield.....
	<i>Sampled by Purchaser:</i>	
20436	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20437	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20438	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20439	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20440	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20441	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20525	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20526	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20564	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20565	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....

DRY GROUND FISH.

Nitrogen.				Phosphoric Acid.				Cost per ton.	Station No.
As ammonia.	As organic.	Total found.	Total guaranteed.	Citrate-insoluble.	Total found.	Total guaranteed.			
%	%	%	%	%	%	%	\$78.00	21071	
0.29	7.97	8.26	8.23	....	8.83	6.00			
0.10	7.92	8.02	8.23	....	7.88	6.00	75.00	21266	
0.49	9.11	9.60	8.20	....	6.40	5.50	80.00	20961	
0.20	8.70	8.90	....	....	7.09	....	....	20542	
0.24	8.30	8.54	....	....	7.62	....	....	20543	
0.19	8.38	8.57	....	....	8.24	....	....	20544	
1.62	6.54	8.16	8.23	....	8.80	6.00	65.00	20907	
0.19	7.91	8.10	8.12	....	7.50	6.00	71.00	21198	
0.26	8.10	8.36	8.22	....	8.43	6.40	....	20924	
0.50	8.72	9.22	9.04	....	5.70	5.26	70.00	21402	
0.10	9.40	9.50	8.23	2.68	8.20	5.00	71.25	20945	
0.20	8.26	8.46	8.23	....	7.40	5.00	60.00	21032	
0.18	8.22	8.40	8.23	1.63	6.83	5.00	....	21537	
0.28	8.82	9.10	9.00	....	7.73	....	75.00	20938	
0.18	8.09	8.27	8.23	1.20	6.28	5.00	....	21470	
0.23	7.83	8.06	8.23	....	8.90	6.00	78.00	21219	
0.93	8.39	9.32	9.04	0.98	7.38	6.00	70.00	20958	
0.25	7.13	7.38	8.22	....	12.54	....	....	20436	
0.18	7.87	8.05	8.22	....	8.49	....	....	20437	
0.30	8.22	8.52	8.22	....	6.87	....	....	20438	
0.20	7.76	7.96	8.22	....	9.79	....	....	20439	
0.19	8.37	8.56	8.22	....	7.84	....	....	20440	
0.21	8.50	8.71	8.22	....	7.23	....	....	20441	
0.24	8.55	8.79	8.22	....	8.42	....	....	20525	
0.24	9.00	9.24	8.22	....	6.47	....	....	20526	
0.30	7.70	8.00	8.22	....	10.89	....	....	20564	
0.26	7.84	8.10	8.22	....	9.95	....	....	20565	

TABLE XI. ANALYSES OF

Station No.	Manufacturer or Wholesale Dealer.	Dealer or Purchaser.
20566	<i>Sampled by Purchaser:</i> Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20567	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20568	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20600	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20601	Atlantic Packing Co., New Haven.	American Sumatra Tobacco Co., Bloomfield.....
20761	79054.....	American Sumatra Tobacco Co., Bloomfield.....
20714	Berkshire Fertilizer Co., Bridgeport	J. E. Shepard, South Windsor...
20791	Berkshire Fertilizer Co., Bridgeport	J. E. Shepard, South Windsor...
21158	L. T. Frisbie Co., New Haven.....	A. E. Plant Sons Co., Branford..
20704	Nitrate Agencies Co., New York..	E. N. Austin, Suffield.....
20841	Olds & Whipple, Inc., Hartford..	Hatheway & Steane, Hartford..
20842	Olds & Whipple, Inc., Hartford..	Hatheway & Steane, Hartford..
20843	Olds & Whipple, Inc., Hartford..	Hatheway & Steane, Hartford..
20876	Olds & Whipple, Inc., Hartford..	Hatheway & Steane, Hartford..
20971	Olds & Whipple, Inc., Hartford..	Hatheway & Steane, Hartford..
21007	Olds & Whipple, Inc., Hartford..	Harold M. Newberry, East Wind- sor Hill.....
21059	Olds & Whipple, Inc., Hartford..	Harold M. Newberry, East Wind- sor Hill.....
21245	Olds & Whipple, Inc., Hartford....	Harold M. Newberry, East Wind- sor Hill.....
20693	75301.....	Conn. Sumatra Tobacco Co., Buckland.....
20694	78899.....	Conn. Sumatra Tobacco Co., Buckland.....
20709	47472.....	Conn. Sumatra Tobacco Co., Buckland.....
21579	.....	L. T. Frisbie Co., New Haven..

DRY GROUND FISH—Concluded.

As ammonia.	Nitrogen.			Phosphoric Acid.			Cost per ton.	Station No.
	As organic.	Total found.	Total guaranteed.	Citrate-insoluble	Total found.	Total guaranteed.		
%	%	%	%	%	%	%	....	20566
0.26	8.50	8.76	8.22	....	8.06	....	....	20567
0.18	9.14	9.32	8.22	....	7.61	....	....	20568
0.16	8.84	9.00	8.22	....	8.01	....	....	20600
0.20	8.06	8.26	....	....	7.52	....	....	20601
0.22	8.81	9.03	....	....	7.71	....	....	20761
0.18	8.12	8.30	....	....	7.82	....	\$65.00	20714
0.19	7.89	8.08	8.22	....	7.85	....	65.00	20791
0.22	8.33	8.55	8.22	....	7.55	6.40	58.00	21158
0.47	8.81	9.28	....	....	5.95	....	66.00	20704
0.25	8.42	8.67	8.23	....	7.29	5.00	60.00	20841
0.24	8.16	8.40	8.23	....	7.32	5.00	60.00	20842
0.26	8.28	8.54	8.23	....	6.98	5.00	60.00	20843
0.22	8.48	8.70	8.23	....	7.02	5.00	....	20876
0.18	8.41	8.59	8.23	....	7.93	5.00	60.00	20971
0.20	9.12	9.32	8.24	....	8.25	5.00	74.10	21007
0.16	8.96	9.12	8.23	....	8.23	5.00	74.10	21059
0.17	9.67	9.84	8.23	....	7.23	5.00	72.20	21245
0.26	8.42	8.68	....	....	7.62	....	....	20693
0.22	8.55	8.77	....	....	7.27	....	....	20694
0.28	8.12	8.40	....	....	7.36	....	....	20709
....	....	8.22	8.22	....	8.68	6.40	60.00	21579

TABLE XII. ANALYSES OF TANKAGE.

Station No.	Manufacturer,	Dealer or Purchaser,	Nitrogen,				Phosphoric Acid.				Mechanical Analysis.				Cost per ton.	Station No.
			As ammonia.	As organic.	Total found.	Guaranteed.	Finer than 1-50 mesh.	Coarser than 1-50 mesh.	Total guaranteed.	Guaranteed.	Finer than 1-50 mesh.	Coarser than 1-50 mesh.	Finer than 1-50 mesh.	Coarser than 1-50 mesh.		
21162	Bone and Meat Tankage <i>Sampled by Station.</i> Apothecaries Hall Co., Waterbury.	J. A. Glasnapp, West Cheshire, Conn.	0.32	4.58	4.90	4.94	16.20	13.73	51	49	46	40.00	21162			
21273	Slaughter House Tankage <i>Sampled by Station.</i> American Agricultural Chemical Co., New York City.	Robt. Greenbacker, Meriden, Conn.	0.68	4.16	4.84	4.94	13.47	13.73	46	54	39.00	21273				
21323	Armour Fertilizer Works, New York City.	0.20	9.64	9.84	7.81	3.38	7.00	56	44	65.00	20910					
20910	Apothecaries Hall Co., Waterbury, Conn.	A. E. Shedd, Norwich, Conn.	none	3.74	3.74	3.29	22.28	.....	57	43	45.00	20919			
20919	Fat Rendering and Fertilizer Corp., New Haven, Conn.	Sampled at Factory, New Haven	0.16	7.05	7.21	7.41	9.65	9.15	37	63	.....	21193			
21193	Consolidated Rendering Co., Boston, Mass.	Sampled at Factory, New Haven	0.21	4.49	4.70	4.92	13.00	14.00	38	62	.....	21194			
21194	Consolidated Rendering Co., Boston, Mass.	Sampled at Factory, New Haven	0.16	5.46	5.62	4.92	15.80	14.00	33	67	.....	21328			
21328	Consolidated Rendering Co., Boston, Mass.	C. E. Lyman, Middlefield, Conn.	0.33	6.73	7.06	6.58	11.73	10.00	66	34	.....	21117			
21117	Wilcox Fertilizer Co., Mystic, Conn.	Sampled at Factory, Mystic	0.20	7.53	7.73	5.74	10.98	10.00	48	52	.....	21121			
21121	Worcester Rendering Co., Auburn, Mass.	A. D. Briggs, Pomfret, Conn.													21121	

TANKAGE.

Ten samples, all drawn by the Station agent have been examined and results are given in Table XII.

Only one of these samples was sold as "bone and meat" tankage but most of the others, by their phosphoric acid content, show the presence of a considerable proportion of bone. Tankage with high phosphoric acid is relatively low in nitrogen.

The utility of the plant food in this material depends to an important degree upon its mechanical condition. In five of the samples examined more than one-half of the material was finer than one-fiftieth of an inch. The fertilizer ingredients in these will be more readily utilized than in the case of coarser products.

There is no consistent comparison in the cost of plant food in the several grades of this product. Taking the four cases in which prices are given, three of them representing goods of about the same degree of fineness, and assuming a uniform value of 6 cents per pound for total phosphoric acid, the cost per pound of nitrogen in **20910** which contains the least bone, is 31 cents. In the other three, which contain relatively large amounts of bone, nitrogen has cost from 17.3 to 24.5 cents per pound.

GROUND BONE.

Twenty-eight samples of ground bone were examined, thirteen of which were drawn by the Station agent and fifteen were submitted by purchasers. The results appear in Table XIII.

Ground bone is a very desirable form of plant food where immediate availability is not essential. It is used to advantage for seeding down and for certain crops which require a long season in which to mature. Like tankage the mechanical condition of the bone meal is important. Of the twenty-eight samples analyzed this year, in twenty-one 50 per cent or more of the material was finer than 1/50th of an inch; in ten, 70 per cent or more was of that degree of fineness. Three samples were very coarse, 30 per cent or less passing 1/50th mesh.

Two samples, **21181** and **21251** were deficient in nitrogen by 0.16 per cent in each case. Samples **20915** and **21054** failed to meet their guaranties for phosphoric acid by 1.30 and 3.68 per cent respectively.

The average nitrogen content of all samples is 3.91 per cent and the average amount of phosphoric acid found is 24.67 per cent. *At the average of prices quoted (\$48.41), allowing 22 cents per pound for nitrogen, phosphoric acid from this source has cost 6.3 cents per pound.*

TABLE XIII. ANALYSES OF

Station No.	Manufacturer.	Dealer or Purchaser.
21025	<i>Sampled by Station:</i> American Agricultural Chemical Co., New York.....	Bristol Grain & Supply Co., Bristol
21039	Apothecaries Hall Co., Waterbury.	Sampled at Factory.....
21181	Armour Fertilizer Works, New York	John O. Fox, Putnam.....
21013	Berkshire Fertilizer Co., Bridgeport	Sampled at Factory.....
21545	E. D. Chittenden Co., Bridgeport..	J. E. Stoddard, Abington.....
20915	Consolidated Rendering Co., Boston	Cheshire Reformatory, Cheshire...
21195	Consolidated Rendering Co., Boston	Sampled at Factory, New Haven..
21101	L. T. Frisbie Co., New Haven.....	Jordan Hardware Co., Willimantic
20941	Olds & Whipple, Inc., Hartford..	Rackliffe Bros. Co., New Britain..
21455	Rogers & Hubbard Co., Portland..	Cadwell & Jones, Hartford.....
21461	Rogers & Hubbard Co., Portland..	Willimantic Grain Co., Willimantic
21473	F. S. Royster Guano Co., Baltimore	Plumb Bros., Waterbury
21483	Sanderson Fertilizer & Chemical Co., New Haven	G. W. Thorpe, West Cheshire.....
21134	M. L. Shoemaker & Co., Philadelphia	Olds & Whipple Co., Inc., Hartford
21114	Wilcox Fertilizer Co., Mystic	Lyon & Ewald, New London.....
19947	<i>Sampled by Purchaser:</i> Apothecaries Hall Co., Waterbury.	H. H. Newell, Marion.....
20534	Apothecaries Hall Co., Waterbury.	Hatheway & Steane, Hartford.....
20535	Apothecaries Hall Co., Waterbury.	Hatheway & Steane, Hartford.....
20536	Apothecaries Hall Co., Waterbury.	Hatheway & Steane, Hartford.....
20537	Apothecaries Hall Co., Waterbury.	Hatheway & Steane, Hartford.....
20853	Apothecaries Hall Co., Waterbury.	Hatheway & Steane, Hartford.....
20854	Apothecaries Hall Co., Waterbury.	Hatheway & Steane, Hartford.....
20869	Apothecaries Hall Co., Waterbury.	Hatheway & Steane, Hartford.....
20974	Apothecaries Hall Co., Waterbury.	Hatheway & Steane, Hartford.....
21054	Apothecaries Hall Co., Waterbury.	J. E. Shepard, South Windsor.....
21251	Armour Fertilizer Works, New York	Walter T. Clark, Norwich.....
20695	78653.....	Conn. Sumatra Tobacco Co., Buckland.....
20935	.....	John H. Fay, Middletown.....

GROUND BONE.

Nitrogen.		Phosphoric Acid.		Mechanical Analysis.		Cost per ton.	Station No.
Found.	Guaranteed.	Found.	Guaranteed.	Finer than 1-50 inch.	Coarser than 1-50 inch.		
%	%	%	%	%	%		
3.02	2.47	23.90	22.88	28	72	\$55.00	21025
3.77	3.29	25.80	20.00	58	42	55.00	21039
2.31	2.47	27.30	22.00	68	32	55.00	21181
1.85	1.64	26.30	25.00	55	45	40.00	21013
2.39	2.47	26.18	22.00	41	59	50.00	21545
2.36	2.05	24.70	26.00	77	23	42.00	20915
3.17	2.46	26.35	24.00	78	22	....	21195
3.05	2.46	26.30	20.00	64	36	54.00	21101
2.86	2.50	24.40	22.00	51	49	53.85	20941
3.98	3.82	25.85	24.70	47	53	66.00	21455
3.72	3.29	24.90	20.50	72	28	56.00	21461
2.72	2.47	25.85	22.90	52	48	55.00	21473
2.62	2.47	25.70	22.88	28	72	53.00	21483
5.58	4.53	22.40	20.00	91	9	61.75	21134
2.30	2.05	28.30	25.18	62	38	55.00	21114
3.82	....	26.22	....	72	28	45.00	19947
4.03	....	23.72	....	70	30	39.50	20534
3.53	....	25.50	....	74	26	39.50	20535
3.62	....	25.50	....	77	23	39.50	20536
4.20	....	23.84	....	79	21	39.50	20537
4.03	3.29	24.54	20.00	54	46	39.50	20853
4.38	3.29	24.15	20.00	48	52	39.50	20854
3.98	3.29	21.59	20.00	53	47	55.75	20869
3.60	3.29	24.70	20.00	59	41	39.50	20974
4.00	....	19.20	22.88	30	70	42.00	21054
2.54	3.70	26.15	21.50	70	30	39.50	21251
3.45	....	19.83	....	69	31	....	20695
3.85	....	21.70	....	....	....	....	20935

VI. MIXED FERTILIZERS.

FERTILIZERS CONTAINING PHOSPHORIC ACID AND POTASH.

Two non-nitrogenous fertilizers containing phosphoric acid and potash were analyzed.

21132. *Olympic* brand, made by the Virginia-Carolina Chemical Co. and sampled by the Station agent from the stock of E. O. Chapman, North Haven.

21428. *Bone Phosphate and Potash Compound* made by Olds & Whipple, Inc., Hartford and sampled by the Station agent at the factory.

TABLE XIV. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.	Dealer's cash price per ton.
	<i>Sampled by Station:</i> Berkshire Fertilizer Co., Bridgeport.			
21335	Berkshire Tobacco Starter.....	6-4-0	Thompsonville.....	\$53.00
	F. T. Blish Hardware Co., South Manchester.			
21498	Top Dressing for Grass.....	7-4-0	Factory.....	45.75
	Olds & Whipple, Inc., Hartford			
21392	Top Dressing for Grass.....	7-4-0	New Britain.....	49.16
21397	High Grade Tobacco Starter..	10-3-0	Pine Meadow.....	.....
	Sanderson Fertilizer & Chemical Co., New Haven.			
21490	Tobacco Grower.....	5-4-0	Tariffville.....	.....
	M. L. Shoemaker & Co., Philadelphia, Pa.			
21133	Swift-Sure Superphosphate Tobacco Starter 4-10-0.....	4-10-0	Hartford.....	46.00
21318	Swift-Sure Superphosphate Tobacco Starter 4-10-0.....	4-10-0	Windsor Locks.....	51.00

Analyses are as follows:

Station No.	21132	21428
	%	%
Phosphoric acid:		
citrate-insoluble.....	1.47	0.30
total.....	13.28	5.33
available, found.....	11.81	5.03
guaranteed.....	12.00	4.00
Potash:		
as muriate.....	5.81	1.58
total, found.....	5.81	16.74
guaranteed.....	6.00	15.00
Cost per ton.....	\$33.00	\$42.75

CONTAINING NITROGEN AND PHOSPHORIC ACID.

In nitrates.	In ammonia.	Nitrogen			Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Station No.
		Organic.		Total.		Citrate-insoluble.	Total.	So-called "Available."	
2.41	0.04	0.01	2.84	5.30	6.4	0.50	5.03	4.53	21335
3.87	0.13	0.25	1.27	5.52	6.7	1.73	6.28	4.55	21498
4.09 0.28	1.00	0.36 3.28	1.23 5.68	5.68 10.24	6.9 12.5	1.35 0.33	6.00 4.25	4.65 3.92	21392 21397
0.98	0.10	0.01	3.20	4.29	5.2	0.18	4.58	4.40	21490
1.33	0.03	0.29	1.42	3.07	3.7	2.95	14.18	11.23	21133
1.32	0.08	0.54	1.31	3.25	4.0	3.70	14.40	10.70	21318

MIXED FERTILIZERS CONTAINING NITROGEN AND PHOSPHORIC ACID.

Only seven of the nitrogenous superphosphates examined this year were without potash. The analyses of these are given in Table XIV.

It has become widely established in trade practice to designate the grade or quality of mixed fertilizers by stating as a part of the brand name, or instead of it, the guaranteed amounts of plant food contained in the mixture. Thus, Berkshire Tobacco Starter, 6-4-0 means that the mixture carries 6 per cent of ammonia (NH_3), 4 per cent of available phosphoric acid (P_2O_5), and no potash (K_2O). In order to enable the purchaser to more readily compare the results of our analyses with the claims of the manufacturer our tables of analyses of mixed fertilizers have been somewhat revised. The figures in the column headed "Grade" represent the manufacturer's claim or guaranty as to ammonia, available phosphoric acid and potash in the order named and the corresponding ingredients found by our analysis appear in the tables in bold face type. To apply the interpretation in the instance just cited, Table XIV, No. 21335, Berkshire Tobacco Starter claimes to contain 6 per cent of ammonia, 4 per cent of available phosphoric acid and no potash; and it appears from the analysis that 6.4 per cent of ammonia and 4.53 per cent of available phosphoric acid were found. No tests were made for potash as none was declared.

Two samples were found deficient in ammonia; they were:

21498. Blish Hardware Co. Top Dressing for Grass 7-4-0, ammonia deficiency 0.3 per cent.

21133. Shoemaker Swift-Sure Superphosphate Tobacco Starter 4-10-0, ammonia deficiency 0.3 per cent.

A second sample, **21318**, of the last named brand was found to fully meet its guaranty.

MIXED FERTILIZERS CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH.

Analyses of two hundred and seventy samples of fertilizers of this class are given in Table XVI. Nine of these were sampled by purchasers and the remainder were official samples drawn by the Station agent.

To facilitate the comparison between composition guaranteed and that found the same change in the arrangement of analyses has been made as has already been described under the preceding heading, Mixed Fertilizers Containing Nitrogen and Phosphoric Acid.

SAMPLES FAILING TO MEET GUARANTIES.

A large proportion of the fertilizers in this group have failed to meet their guaranties in all respects. Of the two hundred and

sixty-one officially drawn samples, one hundred and eighteen, or about 45 per cent, were deficient with respect to one or more of the guaranteed ingredients, deficiencies of 0.12 per cent or less in ammonia, 0.20 per cent or less in available phosphoric acid and 0.15 per cent or less in potash being disregarded in arriving at these figures. The number of ammonia deficiencies was greater than the numbers of phosphoric acid and potash deficiencies combined. Ninety-four samples, or 36 per cent were deficient in one ingredient; twenty-four, or 9.2 per cent were deficient in two ingredients; but none were found lacking in all of the ingredients guaranteed.

While it is true that many of these deficiencies are not large, perhaps even within the range of analytical differences which occur between experienced analysts, nevertheless it seems clear that manufacturers too often fix guaranties with an insufficient margin of safety.

From the purchaser's standpoint, however, there may be a compensating consideration because, in many cases, a shortage in one item of plant food is accompanied by an over-run in one or both of the other items and a loss in money value does not necessarily occur. If ammonia, available phosphoric acid and potash are valued at about the average of what they have cost in the various raw materials which we have examined, viz; 30, 7 and 5.5 cents per pound respectively, the number of brands thus shown to be deficient in money value is reduced to seventy-seven. Of these seventy-seven the shortage in money value in thirty-one brands is less than one dollar per ton; but in forty-five brands, or about 17.0 per cent of the official samples in this group, the shortage is one dollar or more per ton. This proportion is much greater than usual. The deficient brands are listed in Table XV.

TABLE XV. DEFICIENT BRANDS, 1923.

No.	Brand.	Approximate deficiency in money value per ton.
21154	A. A. C. Co.'s AA 5-4-5.....	\$1.24
21145	A. A. C. Co.'s Lister's Potato Manure 4-8-7.....	1.33
21027	A. A. C. Co.'s National Complete Tobacco 5-4-5.....	1.81
21329	A. A. C. Co.'s National Complete Tobacco 5-4-5.....	1.37
21151	A. A. C. Co.'s National Market Garden 3-8-4.....	1.08
21167	A. A. C. Co.'s National XXX Fish and Potash 3-10-3..	1.31
21340	A. A. C. Co.'s Quinnipiac Superior Top Dressing 6-6-4..	2.91
21012	Armour's Big Crop Fertilizer 4-6-10.....	1.45
21433	Armour's Big Crop Fertilizer 4-6-10.....	2.66
21322	Armour's Big Crop Fertilizer 4-8-4.....	1.28
21011	Armour's Big Crop Fertilizer 5-8-5.....	1.75
21321	Armour's Big Crop Fertilizer 5-8-7.....	9.52 ¹
21288	Armour's Big Crop Fertilizer 8-6-6.....	2.39
21336	Armour's Corn Grower, 2-8-4.....	2.73
21183	Atlantic, 4-8-6.....	3.47
21552	Atlantic, 4-8-6.....	1.33

¹See "Analyses Requiring Special Notice" p 56.

TABLE XV. DEFICIENT BRANDS, 1923—*Concluded.*

No.	Brand.	Approximate deficiency in money value per ton.
21345	Atlantic, Tobacco Grower, 5-4-5.....	1.74
21284	Bowker's Market Garden 4-8-4.....	1.01
21289	Bowker's Stockbridge Early Crop 5-8-7.....	1.58
21285	Bowker's Stockbridge Potato and Vegetable 4-6-10.....	2.49
21436	Clark's Special Mixture 5-8-5.....	1.71
21088	Coe-Mortimer, E. F. Coe's Special Potato 4-8-4.....	4.16
21086	Coe-Mortimer, E. F. Coe's Gold Brand Guano 3-8-4.....	1.89
21528	Eastern States Formula A 7. 3-2-7. 6.....	1.71
21092	Frisbie's Market Garden 4-8-6.....	1.21
21267	Frisbie's Market Garden 4-8-6.....	1.61
21099	Vegetable and Potato 4-8-4.....	1.91
21352	Frisbie's Tobacco Manure 5-8-6.....	2.82
21376	Buffalo Top Dresser 7-6-5.....	1.56
21098	Lowell Animal Brand 3-8-4.....	1.24
21553	Mapes Top Dresser 10-4-2.....	3.20
21403	Nature's Plant Food, 1. 2-3-2.....	3.75
21420	Frank S. Platt, Platco Special 4-8-6.....	2.26
21457	Rogers & Hubbard, Corn and General Crops 3-8-6.....	1.01
21469	Royster's Quality Trucker 4-8-7.....	1.75
21476	Royster's Top Dresser 7-6-5.....	3.52
21486	Sanderson, Kelsey's Bone, Fish and Potash 3-10-3.....	1.43
21492	Springfield, 4-8-6.....	1.21
21485	Springfield, Potato, Onion and Vegetable 4-8-4.....	1.02
21141	Virginia-Carolina, Fish, Phosphate and Potash 2-8-2.....	1.23
21319	Wilcox 5-8-7.....	1.12
21501	Wilcox Grass and Truck 5-8-4.....	1.21
21500	Wilcox Potato and Vegetable 4-8-6.....	1.08
21503	Woodruff & Sons Home Mixed 4-8-6.....	6.07
21506	Worcester Potato and Vegetable, 4-8-4.....	4.31

ANALYSES REQUIRING SPECIAL NOTICE.

Manufacturers or jobbers occasionally request that a second sample be secured and analyzed in case our first analysis has shown a deficiency and, so far as possible, we have granted such requests.

21027. National Complete Tobacco, 5-4-5, was deficient in ammonia and the second sample, **21329**, was likewise deficient.

21021. National Premier Truck Manure, 4-8-7, was deficient in potash and the second sample, **21320**, was also deficient in this respect.

21012. Armour's Big Crop, 4-6-10, was deficient in ammonia and available phosphoric acid on the first analysis. The second sample, **21433**, was deficient in ammonia and potash.

21045. Armour's Big Crop, 4-8-4, was low in available phosphoric and the second sample, **21322**, was low in potash.

21047. Armour's Big Crop, 5-8-7, was low in potash. A second sample, **21321**, was found not to conform at all to a 5-8-7 grade and partial analysis of the duplicate left by our agent with the person whose stock was sampled failed to show any error in sampling. No further samples of this brand could be secured.

Evidently another grade of goods had been put in bags marked 5-8-7 by mistake.

21183. Atlantic, 4-8-6, was deficient in ammonia and potash but the second sample, **21552**, was deficient in ammonia only.

21293. Clark's Special Tip Top, 5-8-5, was deficient in ammonia and the second sample, **21436**, was also deficient in this respect.

21298. Essex Market Garden, 4-8-4, was low in ammonia but the second sample, **21435**, fully met the guaranty in all respects.

21092. Frisbie's Market Garden, 4-8-6, was low in ammonia and the second sample, **21267**, was likewise deficient.

21099. Frisbie's Special Vegetable, 4-8-4, was low in both ammonia and potash but the second sample, **21265**, was deficient in ammonia only.

21352. Frisbie's Tobacco Manure, 5-8-6, was low in ammonia but the second sample, **21574**, met the guaranty.

21380. Mapes Tobacco Ash Constituents, 1-4-15, was deficient in potash; the second sample, **21458**, contained about 2 per cent more potash but it was still under guaranty.

21103. Mapes Top Dresser, 10-4-2, was low in ammonia; the second sample, **21153**, was also low in this respect.

20960. Mapes Tobacco Starter, 5-6-1, was low in ammonia but the second sample, **21268**, satisfied the guaranty.

CLASSIFICATION OF GRADES WITH PARTICULAR REFERENCE TO AMMONIA.

Attention has been called in previous reports to the relatively higher cost of nitrogen in low priced goods carrying low guaranties of ammonia. It was shown, for example¹, that the cost per pound of nitrogen in goods guaranteed 1 per cent ammonia (0.82 per cent nitrogen), was from two and one-half to three times greater than in brands carrying 3 to 5 per cent ammonia (2.47 to 4.11 nitrogen). A gradual reduction in the proportion of low nitrogen brands is shown by summaries for the last three years as follows:

Guaranty.	Percentage of Samples.		
	1921	1922	1923
1 per cent ammonia (0.82 nitrogen).....	10.0	6.0	4.2
2 per cent ammonia (1.65 nitrogen).....	20.4	19.1	16.5
3 per cent ammonia (2.47 nitrogen).....	23.2	19.1	16.1
4 per cent ammonia (3.29 nitrogen).....	20.4	25.9	26.1
5 per cent ammonia (4.11 nitrogen).....	21.4	23.0	24.5
6 per cent ammonia (4.94 nitrogen).....	4.6	6.9	4.9
7 to 12 per cent ammonia (5.76 to 9.87 nitrogen).....	....	....	7.7
Total.....	100.0	100.0	100.0

¹Conn. Exp. Sta., Bull. 241, p. 110

The number of samples carrying guaranties of from 4 to 5 per cent ammonia comprised over 50 per cent of the total number this year.

THE "NEW ENGLAND STANDARD NINE."

At a meeting in Boston in the latter part of December, 1922, New England agronomists and representatives of fertilizer manufacturers discussed and finally adopted a list of high analysis fertilizers which, it was felt, would adequately meet all the reasonable needs of farmers in the New England states. It has long been recognized that the great multiplicity of brands now on the market, many of which differ from one another but very slightly, is an economic disadvantage in that it adds to the cost of manufacture and distribution of fertilizers and serves no real agricultural need. However, competition is keen in the fertilizer business and many brands have established good will values which their manufacturers do not wish to sacrifice. Manufacturers will, therefore, continue to emphasize *brands* until purchasers more generally think in terms of *grades*. It was the sense of this New England conference that the nine grades chosen would satisfy present requirements and that they should be advocated until there is evidence that revision of the list should be made.

The formulas adopted and now known as the "New England Standard Nine" and the number of mixed fertilizers examined by us this year which fall in these respective grades are as follows:

Standard Grade	Number of samples.
0-12-6.....	1
2-12-4.....	2
3-10-4.....	1
3-10-6.....	0
4-8-4.....	30
4-8-6.....	12
5-4-5.....	23
5-8-7.....	14
8-6-6.....	1
 Total	 84

These figures show that of two hundred and sixty-one "complete" fertilizers and two containing only phosphoric acid and potash, one hundred and seventy-nine do not fall in any of the nine grades here given although many of them approach these grades more or less closely. Only four of the adopted grades are represented by any considerable number of samples and one grade is not represented at all. However, as the purpose of these nine grades becomes better known among manufacturers and users of fertilizers their representation will, no doubt, increase.

AVAILABILITY OF THE ORGANIC NITROGEN.

Only three samples showed deficiencies in the quality of the insoluble organic nitrogen by both the alkaline and the neutral methods of evaluation. In these cases, however, the amounts of insoluble organic nitrogen were small (.4 to .5 per cent), and the total nitrogen was in excess of the guaranty in all cases, the excesses being greater than, or practically equal to, the inactive nitrogen found.

TABLE XVI. ANALYSES OF MIXED FERTILIZERS.

Station. No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
American Agricultural Chemical Co., New York.			
20992	Complete Potato Mixture	3-8-4	New Britain
21156	Crescent Complete Manure	2-8-3	Stamford
21154 ¹	Double A Tobacco Fertilizer	5-4-5	Portland
21346	Fish and Potash	3-10-3	South Manchester
21030	Grass and Lawn Top Dressing	6-6-4	North Stonington
20993	7% Potash Fertilizer	4-8-7	New Haven
21275	5-4-3 Tobacco Fertilizer	5-4-3	New Milford
21029	Universal Phosphate	1-8-2	New London
21152	Bradley's Complete Manure for Top Dressing Grass and Grain	6-6-4	Groton
21028	Bradley's Complete Manure for Potatoes and Vegetables	4-8-7	East River
21026	Bradley's Complete Tobacco Manure	5-4-5	Glastonbury
20991	Bradley's Corn Phosphate	2-8-2	Bristol
21153	Bradley's Fish Compound	3-10-3	Meriden
20987	Bradley's New Method Fertilizer	1-8-2	Wallingford
21150	Bradley's Potato Fertilizer	2-8-3	East River
21155	Bradley's Potato Manure	3-8-4	Norwalk
21149	Bradley's Superior Tobacco Compound	7-3-7	Glastonbury
20994	Bradley's X. L. Superphosphate of Lime	3-9-2	Suffield
21272	Listers Celebrated Tobacco Fertilizer	5-4-3	West Suffield
20989	Listers Corn and Potato Fertilizer	2-8-3	Yalesville
21024	Listers Eastern Pride Fertilizer	3-8-4	Yalesville
21145 ¹	Listers Potato Manure	4-8-7	Yalesville
21146	Listers Standard Pure Superphosphate of Lime	3-9-2	Yalesville
20990	Listers Success Fertilizer	2-8-2	Yalesville
21027 ¹	National Complete Tobacco Fertilizer	5-4-5	Broad Brook
21329 ¹	National Complete Tobacco Fertilizer	5-4-5	Broad Brook
21151 ¹	National Market Garden Fertilizer	3-8-4	New London
20985	National Potato and Corn Phosphate	2-8-3	Wallingford
21021 ²	National Premier Truck Manure	4-8-7	Broad Brook
21320 ²	National Premier Truck Manure	4-8-7	Silver Lane
21549	National Special Tobacco	5-4-3	Suffield
21022	National Top Dressing Compound	6-6-4	Broad Brook
20986	National Universal Phosphate	1-8-2	Wallingford
21173	National White Ash Tobacco Grower	7-3-7	Warehouse Point
21167 ¹	National XXX Fish and Potash	3-10-3	Silver Lane

¹ See Table XV, p. 55.² See Note, p. 56.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH.

Dealer's cash price per ton.	Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.		Potash.		Station No.	
	In nitrates.		In ammonia.	Organic, water-soluble.	Organic, water-insoluble.		Citrate-insoluble.	Total.	So-called "Available."	As muriate.		
	%	%	%	%	%		%	%	%	%		
\$46.00	0.48	0.84	0.39	0.69	2.40	2.92	0.75	8.84	8.09	3.97	3.97	20992
.....	0.12	0.38	0.51	0.71	1.72	2.09	0.63	8.78	8.15	2.81	2.81	21156
57.25	0.98	0.02	none	2.82	3.82	4.64	0.38	4.83	4.45	1.16	5.26	21154
46.00	0.48	0.71	0.53	0.70	2.42	2.94	0.83	10.85	10.02	3.03	3.03	21346
52.00	2.75	1.21	0.22	0.57	4.75	5.78	1.28	7.90	6.62	4.13	4.13	21030
.....	0.72	1.40	0.60	0.65	3.37	4.10	0.90	8.78	7.88	7.02	7.02	20993
53.00	1.04	none	0.06	3.02	4.12	5.01	0.23	4.70	4.47	0.33	3.10	21275
38.00	none	0.08	0.27	0.56	0.91	1.11	0.43	8.89	8.46	1.86	1.86	21029
50.00	3.14	1.18	0.21	0.59	5.12	6.22	1.00	7.35	6.35	3.98	3.98	21152
48.00	0.60	1.44	0.68	0.65	3.37	4.10	1.30	9.35	8.05	6.38	6.38	21028
57.25	0.96	0.08	none	3.17	4.21	5.12	0.35	5.00	4.65	0.58	5.35	21026
40.00	0.10	0.54	0.38	0.63	1.65	2.01	0.78	9.06	8.28	1.89	1.89	20991
50.00	0.49	0.69	0.46	0.71	2.35	2.86	1.13	11.03	9.90	3.16	3.16	21153
33.00	0.07	0.08	0.09	0.66	0.90	1.09	0.80	9.11	8.31	2.40	2.40	20987
.....	0.07	0.48	0.38	0.73	1.66	2.02	1.00	9.28	8.28	2.93	2.93	21150
45.00	0.48	0.82	0.45	0.73	2.48	3.02	0.68	8.93	8.25	4.07	4.07	21155
67.00	1.17	0.03	0.28	4.40	5.88	7.15	0.40	4.18	3.78	0.78	7.67	21149
40.00	0.70	0.82	0.35	0.64	2.51	3.05	0.75	9.89	9.14	2.11	2.11	20994
48.60	0.98	0.02	0.02	3.11	4.13	5.02	0.28	4.90	4.62	0.40	3.29	21272
40.00	0.02	0.54	0.52	0.59	1.67	2.03	0.98	9.12	8.14	2.72	2.72	20989
.....	0.43	0.86	0.39	0.71	2.39	2.91	0.80	8.90	8.10	3.99	3.99	21024
.....	0.72	1.28	0.39	0.79	3.18	3.87	1.18	9.18	8.00	6.50	6.50	21145
.....	0.49	0.77	0.37	0.71	2.34	2.84	0.70	10.00	9.30	1.89	1.89	21146
38.00	0.11	0.45	0.35	0.56	1.53	1.86	0.78	9.40	8.62	1.97	1.97	20990
59.50	0.52	0.06	0.16	3.06	3.80	4.62	0.35	4.78	4.43	0.54	4.88	21027
56.60	0.68	0.04	0.08	3.05	3.85	4.68	0.25	4.61	4.36	0.47	5.05	21329
50.00	0.68	0.62	0.55	0.54	2.39	2.91	0.65	8.51	7.86	3.69	3.69	21151
.....	0.16	0.56	0.36	0.72	1.80	2.19	1.03	9.15	8.12	3.00	3.00	20985
45.70	0.70	1.36	0.71	0.61	3.38	4.11	1.00	9.03	8.03	6.56	6.56	21021
.....	0.75	1.37	0.61	0.62	3.35	4.07	1.03	9.03	8.00	6.59	6.59	21320
54.00	0.98	0.03	0.11	3.00	4.12	5.01	0.30	4.60	4.30	0.36	3.62	21549
49.30	2.99	1.17	0.45	0.60	5.21	6.33	0.83	7.05	6.22	4.06	4.06	21022
.....	0.11	0.11	0.15	0.62	0.99	1.20	0.73	8.99	8.26	2.04	2.04	20986
68.00	0.95	0.12	0.53	4.10	5.70	6.93	0.28	3.95	3.67	*0.78	6.92	21173
.....	0.45	0.75	0.42	0.71	2.33	2.83	1.03	10.75	9.72	3.09	3.09	21167

TABLE XVI. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
American Agricultural Chemical Co., New York—Continued.			
21048	Quinnipiac Corn Manure.....	2-8-2	North Stonington.....
21164	Quinnipiac Fish and Potash Phosphate.....	3-10-3	North Haven.....
21172	Quinnipiac Market Garden Manure.....	4-8-7	Gaylordsville.....
21049	Quinnipiac Phosphate.....	3-9-2	North Stonington.....
21046	Quinnipiac Potato Phosphate.....	2-8-3	North Haven.....
21165	Quinnipiac Prime Tobacco Manure.....	7-3-7	Manchester.....
21166	Quinnipiac Seed Leaf Tobacco Manure.....	5-4-5	Manchester.....
21340 ¹	Quinnipiac Superior Top Dressing Manure.....	6-6-4	Melrose.....
21341	Quinnipiac Wrapper Leaf Brand Tobacco Manure.....	5-4-3	Windsor.....
21339	Wheeler's Ammoniated Fish Manure.....	3-10-3	Northford.....
21171	Wheeler's Corn Fertilizer.....	2-8-2	New Milford.....
21274	Wheeler's Cuban Tobacco Grower.....	5-4-5	New Milford.....
21344	Wheeler's Early Market Compound.....	4-8-7	Huntington.....
21337	Wheeler's Potato Manure.....	2-8-3	Thomaston.....
21338	Wheeler's Royal Wheat Grower.....	1-8-2	Thomaston.....
21343	Wheeler's Universal Mixture.....	3-8-4	Huntington.....
Apothecaries Hall Co., Waterbury.			
21050	Liberty Corn, Fruit and All Crops.....	2-8-2	Willimantic.....
20940	Liberty Fish, Bone and Potash.....	3-8-3	Meriden.....
21019	Liberty High Grade Market Gardeners.....	5-8-7	Meriden.....
21163	Liberty High Grade Tobacco Special.....	8-4-5	East Windsor.....
21015	Liberty Market Gardeners' Special.....	4-8-4	Cheshire.....
21170	Liberty Tobacco Special.....	5-4-5	East Windsor.....
21270	Liberty Top Dresser for Grass and Grain.....	7-8-3	East Windsor.....
Armour Fertilizer Works, New York.			
21282	Armour's Big Crop Fertilizer, 2-12-2	2-12-2	Rockville.....
21020	Armour's Big Crop Fertilizer, 3-8-4.....	3-8-4	Thompsonville.....
21012 ¹	Armour's Big Crop Fertilizer, 4-6-10.....	4-6-10	New Haven.....
21433 ¹	Armour's Big Crop, 4-6-10.....	4-6-10	Guilford.....
21045 ²	Armour's Big Crop, 4-8-4.....	4-8-4	Guilford.....
21322 ¹	Armour's Big Crop, 4-8-4.....	4-8-4	Norwich.....

¹ See Table XV, p. 55.² See Note, p. 56.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Dealer's cash price per ton.	Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
	In nitrates.	In ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available."	As muriate.	Total.	
\$38.00	0.08	0.52	0.61	0.45	1.66	2.02	1.01	8.92	7.91	2.08	2.08	21048
43.00	0.40	0.78	0.53	0.73	2.44	2.97	0.97	10.63	9.66	2.97	2.97	21164
46.00	0.57	1.43	0.67	0.62	3.29	4.00	1.07	9.02	7.95	7.22	7.22	21172
42.00	0.66	0.72	0.64	0.51	2.53	3.08	0.72	9.65	8.93	2.05	2.05	21049
40.00	0.15	0.58	0.42	0.63	1.78	2.16	1.02	9.12	8.10	3.26	3.26	21046
.....	0.96	0.12	0.65	4.15	5.88	7.15	0.33	4.15	3.82	1.14	7.09	21165
.....	0.94	0.02	0.12	2.96	4.04	4.91	0.38	4.73	4.35	0.57	4.86	21166
50.00	2.33	1.06	0.49	0.50	4.38	5.33	0.83	7.58	6.75	4.05	4.05	21340
48.00	1.10	none	none	3.20	4.30	5.23	0.30	4.78	4.48	0.39	3.66	21341
40.00	0.35	0.73	0.65	0.68	2.41	2.93	1.08	11.08	10.00	2.95	2.95	21339
.....	0.18	0.47	0.34	0.66	1.65	2.01	0.93	9.20	8.27	2.09	2.09	21171
.....	1.68	none	0.04	2.43	4.15	5.05	0.28	4.21	3.93	0.56	4.50	21274
.....	0.69	1.34	0.67	0.57	3.27	3.98	1.15	9.20	8.05	6.67	6.67	21344
.....	0.08	0.38	0.55	0.72	1.73	2.10	0.67	8.63	7.96	3.00	3.00	21337
.....	0.13	0.31	0.26	0.52	1.22	1.48	0.60	8.73	8.13	2.54	2.54	21338
.....	0.50	0.86	0.38	0.73	2.47	3.00	0.63	8.90	8.27	3.86	3.86	21343
.....
34.00	0.15	0.43	0.23	1.43	2.24	2.72	1.40	10.28	8.88	2.43	2.43	21050
61.00	0.11	2.14	0.68	2.93	3.56	0.88	9.63	8.75	3.01	3.01	3.01	20940
57.00	0.98	2.70	0.07	0.54	4.29	5.22	0.58	9.68	9.10	6.78	6.78	21019
67.50	0.33	3.22	0.15	2.98	6.68	8.12	0.55	6.63	6.08	0.60	5.65	21163
46.00	0.18	2.82	0.20	0.41	3.61	4.39	0.70	9.08	8.38	4.36	4.36	21015
55.00	0.16	1.12	1.10	2.22	4.60	5.59	0.63	6.13	5.50	0.54	6.22	21170
56.00	0.16	5.14	0.20	0.50	6.00	7.29	0.75	10.15	9.40	3.20	3.20	21270
44.00	0.18	1.00	0.13	0.45	1.76	2.14	0.51	12.15	11.64	2.03	2.03	21282
42.00	0.16	0.52	0.18	0.53	2.39	2.91	0.53	8.64	8.11	3.93	3.93	21020
50.00	1.15	1.03	0.28	0.62	3.08	3.74	0.35	6.13	5.78	10.38	10.38	21012
41.50	0.96	1.02	0.35	0.82	3.15	3.83	0.35	6.20	5.85	8.70	8.70	21433
38.75	1.41	0.98	0.26	0.64	3.29	4.00	0.84	8.44	7.60	4.06	4.06	21045
34.75	1.21	0.95	0.22	0.79	3.17	3.85	0.65	8.53	7.88	3.81	3.81	21322

TABLE XVI. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
Armour Fertilizer Works, New York			
<i>—Continued.</i>			
21043	Armour's Big Crop Fertilizer Tobacco Special, 5-4-5.....	5-4-5	Rockville.....
21011 ¹	Armour's Big Crop Fertilizer, 5-8-5.....	5-8-5	New Haven.....
21047 ²	Armour's Big Crop Fertilizer, 5-8-7.....	5-8-7	Madison.....
21321 ¹	Armour's Big Crop, 5-8-7.....	5-8-7	Norwich.....
21480 ³	Armour's Big Crop, 5-8-7.....	5-8-7	Norwich.....
21288 ¹	Armour's Big Crop Grass, 8-6-6.....	8-6-6	Putnam.....
21336 ¹	Armour's Corn Grower.....	2-8-1	Branford.....
Atlantic Packing Co., New Haven			
21183 ¹	Atlantic, 4-8-6.....	4-8-6	Norwich.....
21552 ¹	Atlantic, 4-8-6.....	4-8-6	Factory.....
21108	Atlantic Grain Fertilizer, 2-8-2.....	2-8-2	South Windsor.....
21290	Atlantic Potato Phosphate, 3-8-4.....	3-8-4	Waterbury.....
21182	Atlantic Special Vegetable, 4-8-4.....	4-8-4	Norwich.....
21345 ¹	Atlantic Tobacco Grower, 5-4-5.....	5-4-5	Glastonbury.....
21342	Atlantic Tobacco Manure, 5-8-6.....	5-8-6	East Hartford.....
Berkshire Fertilizer Co., Bridgeport.			
21063	Berkshire, 5-8-7.....	5-8-7	Woodstock.....
21178	Berkshire Ammoniated Bone Phosphate.....	1-10-2	Centerbrook.....
21064	Berkshire Complete Fertilizer.....	3-8-3	Woodstock.....
21184	Berkshire Complete Tobacco.....	5-3-5	New Milford.....
21177	Berkshire Grass Special.....	7-4-4	Centerbrook.....
21065	Berkshire Market Garden.....	4-8-4	Woodstock.....
21014	Berkshire Potato and Vegetable.....	2-8-2	Ansonia.....
21355	Berkshire Tobacco Special.....	7-3-5	Suffield.....
F. T. Blish Hardware Co., South Manchester.			
21113	Complete Market Garden.....	4-8-4	Factory.....
21505	Complete Tobacco Fertilizer.....	5-3-5	Factory.....
21112	Potato Phosphate.....	2-8-2	Factory.....
F. E. Boardman, Middletown.			
21185	Boardman's Fertilizer, Potato and General Crops.....	4-7-4	Factory.....
21356	Boardman's Tobacco Fertilizer.....	4-7-4	Middletown.....

¹ See Table XV, p. 55.² See Note, p. 56.³ Duplicate of 21321.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Dealer's cash price per ton.	Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.		Potash.		Station No.
	In nitrates.	In ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total		Citrate-insoluble.	Total.	So-called "Available."	As muriate.	
	%	%	%	%	%	%	%	%	%	%	
\$64.00	0.89	0.03	0.20	3.55	4.67	5.68	0.43	4.40	3.97	0.62	5.53 21043
52.00	1.50	1.18	0.35	0.86	3.89	4.73	0.63	8.70	8.07	4.79	4.79 21011
50.00	1.46	1.37	0.36	0.85	4.04	4.91	0.70	8.83	8.13	6.76	6.76 21047
39.50	1.02	0.85	0.11	0.69	2.67	3.25	0.60	11.43	10.83	4.29	4.29 21321
...	...	...	...	...	2.80	3.40	...	...	...	...	21480
62.15	1.44	3.16	0.28	1.44	6.32	7.68	0.24	5.90	5.66	6.01	6.01 21288
43.00	0.11	0.81	0.25	0.41	1.58	1.92	0.55	8.53	7.98	1.98	1.98 21336
....	1.03	0.75	0.54	0.62	2.94	3.57	1.65	9.51	7.86	5.37	5.37 21183
....	1.03	0.75	0.45	0.76	2.99	3.64	0.73	9.30	8.57	6.03	6.03 21552
....	0.98	0.06	0.17	0.50	1.71	2.08	0.47	8.11	7.64	2.14	2.14 21108
44.75	1.34	0.06	0.58	0.70	2.68	3.26	0.68	9.33	8.65	3.62	3.62 21290
....	1.33	0.52	0.34	1.01	3.20	3.89	0.50	8.74	8.24	4.00	4.00 21182
53.30	1.38	0.04	0.44	1.78	3.64	4.43	0.23	5.15	4.92	0.73	5.36 21345
50.00	1.16	0.04	0.69	2.19	4.08	4.96	0.45	9.40	8.95	0.74	6.37 21342
40.50	2.27	0.59	0.38	0.78	4.02	4.89	1.39	9.39	8.00	7.19	7.19 21063
38.00	none	0.24	0.52	0.30	1.06	1.29	1.08	11.85	10.77	2.03	2.03 21178
31.50	0.92	0.54	0.53	0.86	2.85	3.46	1.94	9.81	7.87	3.47	3.47 21064
....	0.90	0.10	0.14	3.00	4.14	5.03	0.18	4.53	4.35	0.57	5.98 21184
55.00	4.58	0.02	0.58	1.06	6.24	7.59	1.83	5.59	3.76	3.91	3.91 21177
35.25	1.76	0.60	0.41	0.65	3.42	4.16	1.62	9.44	7.82	4.75	4.75 21065
38.00	0.70	0.42	0.56	0.30	1.98	2.41	1.55	9.36	7.81	2.34	2.34 21014
....	1.24	0.30	0.72	3.41	5.67	6.89	0.18	5.08	4.90	0.90	5.68 21355
41.75	1.91	0.17	0.12	1.39	3.59	4.36	1.66	10.16	8.50	3.50	4.17 21113
53.20	0.82	0.06	0.16	3.24	4.28	5.20	0.20	4.18	3.98	0.77	5.46 21505
33.05	0.76	0.18	none	0.76	1.70	2.07	1.23	9.80	8.57	2.47	2.47 21112
41.00	1.46	0.34	0.44	1.10	3.34	4.06	1.19	8.03	6.84	3.46	3.99 21185
40.50	1.56	0.30	0.35	1.25	3.46	4.21	0.78	8.20	7.42	0.31	4.66 21356

TABLE XVI. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
	<i>Sampled by Station:</i>		
21018	Bowker Fertilizer Co., New York. Bowker's All Round Fertilizer.....	3-8-4	Yalesville.....
21179	Bowker's Corn, Grain and Grass Phosphate.....	2-8-2	New London.....
21176	Bowker's Fisherman's Brand Fish and Potash.....	3-10-3	Plainville.....
21284 ¹	Bowker's Market Garden Fertilizer.	4-8-4	New London.....
21017	Bowker's Potato and Vegetable Phosphate.....	2-8-3	Plantsville.....
21368	Bowker's Square Brand Farm and Garden Phosphate.....	2-8-2	Plainville.....
21016	Bowker's Sure Crop Phosphate.....	1-8-2	Plantsville.....
21289 ¹	Stockbridge Early Crop Manure.....	5-8-7	Rockville.....
21285 ¹	Stockbridge Potato and Vegetable Manure.....	4-6-10	Willimantic.....
21360	Stockbridge Premier Tobacco Grow- er.....	7-3-7	South Manchester...
21281	Stockbridge Tobacco Manure.....	5-4-5	Thompsonville.....
21280	Stockbridge Truck Manure.....	4-8-7	Plantsville.....
	Amos D. Bridge's Sons, Inc., Hazardville.		
21080	Corn, Onion and Potato and General Purpose.....	4-8-4	Factory.....
21081	Special Tobacco Fertilizer.....	5-3-5	Factory.....
	The E. D. Chittenden Co., Bridgeport.		
21082	Chittenden's Complete Grain.....	2-8-3	Broad Brook.....
21357	Chittenden's High Grade Tobacco.....	6.5-3-7.5	Broad Brook.....
21200	Chittenden's Potato Special 4% Potash.....	4-8-4	Abington.....
21204	Chittenden's Potato Special 6% Potash.....	4-8-6	Poquonock.....
21083	Chittenden's Tobacco Special 3% Potash.....	5-4-5	Broad Brook.....
	E. B. Clark Seed Co., Milford.		
21297	Clark's 3-8-2.....	3-8-2	Factory.....
21294	Clark's Special Mixture with 4% Potash Fertilizer.....	4-8-4	Branford.....
21295	Clark's Special Mixture with 6% Potash.....	4-8-6	Branford.....
21293	Clark's Special Mixture Tip Top Brand	5-8-5	Branford.....
21436 ¹	Clark's Special Mixture Tip Top Brand	5-8-5	Factory.....

¹ See Table XV, p. 55.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Dealer's cash price per ton.	Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.		Potash.		Station No.	
	In nitrates.	In ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available."	As muriate.		
\$49.75	0.48	0.84	0.40	0.74	2.46	2.99	0.75	8.80	8.05	4.27	4.27	21018
35.00	0.09	0.37	0.65	0.51	1.62	1.97	0.43	8.61	8.18	2.10	2.10	21179
44.00	0.41	0.76	0.55	0.72	2.44	2.97	0.90	10.60	9.70	3.05	3.05	21176
45.00	0.92	1.20	0.50	0.54	3.16	3.84	0.49	8.56	8.07	3.86	3.86	21284
35.00	0.22	0.52	0.36	0.70	1.80	2.19	1.00	9.23	8.23	3.46	3.46	21017
39.00	0.10	0.50	0.34	0.64	1.58	1.92	0.88	9.05	8.17	1.89	1.89	21368
33.00	0.20	0.38	0.25	0.65	1.48	1.80	0.78	9.00	8.22	3.09	3.09	21016
54.00	0.72	2.06	0.58	0.61	3.97	4.83	0.96	8.78	7.82	6.72	6.72	21289
46.00	0.83	1.20	0.46	0.52	3.01	3.66	0.40	6.69	6.29	9.22	9.22	21285
74.00	0.96	0.06	0.40	4.46	5.88	7.15	0.28	4.25	3.97	0.70	7.22	21360
55.00	0.02	0.04	1.15	2.95	4.16	5.06	0.38	4.70	4.32	0.70	5.18	21281
41.00	0.65	1.35	0.67	0.59	3.26	3.96	1.00	8.93	7.93	6.93	6.93	21280
43.50	1.50	0.09	0.28	1.50	3.37	4.10	1.53	9.73	8.20	4.23	4.23	21080
54.00	1.00	0.08	0.11	3.16	4.35	5.29	0.20	4.40	4.20	0.70	6.03	21081
32.00	0.17	1.02	0.16	0.69	2.04	2.48	0.99	8.60	7.61	3.13	3.13	21082
69.00	1.08	2.10	0.13	1.75	5.06	6.15	0.20	4.83	4.63	0.62	7.56	21357
43.00	1.51	1.11	0.08	0.67	3.37	4.10	0.90	9.28	8.38	3.97	3.97	21200
45.00	0.98	1.64	0.05	0.62	3.29	4.00	1.15	9.28	8.13	5.76	5.76	21204
56.00	0.85	1.71	0.14	1.44	4.14	5.03	0.25	6.30	6.05	0.70	5.44	21083
34.00	0.15	1.53	0.28	0.36	2.32	2.82	1.68	11.90	10.22	2.74	2.74	21297
41.00	0.06	2.46	0.25	0.32	3.09	3.76	1.50	10.88	9.38	3.34	3.34	21294
42.00	0.10	2.40	0.26	0.34	3.10	3.77	1.38	9.60	8.22	7.12	7.12	21295
44.00	0.56	2.56	0.28	0.52	3.92	4.77	1.38	9.30	7.92	5.51	5.51	21293
43.00	2.20	1.00	0.24	0.35	3.79	4.61	1.83	10.28	8.45	5.00	5.00	21436

TABLE XVI. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
	<i>Sampled by Station:</i>		
21088 ¹	The Coe-Mortimer Co., New York.		
21089	E. Frank Coe's Celebrated Special Potato Fertilizer.....	4-8-4	Colchester.....
21302	E. Frank Coe's Columbian Corn and Potato Fertilizer.....	2-8-3	Colchester.....
21086 ¹	E. Frank Coe's Connecticut Wrapper Grower.....	5-4-5	Simsbury.....
21087	E. Frank Coe's Gold Brand Excelsior Guano.....	3-8-4	Milford.....
21197	E. Frank Coe's New Englander Special.....	1-8-2	Saybrook.....
21196	E. Frank Coe's Red Brand Excelsior Guano.....	4-8-7	Colchester.....
21359	E. Frank Coe's Special Grass Top Dressing.....	6-6-4	Milford.....
	E. Frank Coe's Tobacco Leaf Fertilizer.....	5-4-3	Bloomfield.....
	Eastern States Farmers' Exchange, Springfield, Mass.		
21550	Eastern States, 2-8-2.....	2-8-2	Bloomfield.....
21085	Eastern States, 3-12-3.....	3-12-3	Branford.....
21084	Eastern States, 4-8-4.....	4-8-4	Branford.....
21291	Eastern States, 4-8-7.....	4-8-7	Branford.....
21203	Eastern States, 5-8-7 No-Filler Fertilizer.....	5-8-7	Ellington.....
21202	Eastern States, 5-10-5 No-Filler Fertilizer.....	5-10-5	Ellington.....
21299	Eastern States, 7-8-3 No-Filler Fertilizer.....	7-8-3	Ellington.....
21528 ¹	Eastern States, Formula A.....	7.3-2-7.6	Granby.....
21515	Eastern States, Formula B.....	6.6-3.5-5	Ellington.....
21527	Eastern States, Formula C.....	6.5-3-5.5	Ellington.....
	Essex Fertilizer Co., Boston, Mass.		
21079	Essex 2-8-2 for Farm and Garden.....	2-8-2	Wallingford.....
21078	Essex Fish Fertilizer for all Crops, 3-8-4.....	3-8-4	Wallingford.....
21351	Essex 4-6-10 for Potatoes and Vegetables.....	4-6-10	South Manchester...
21298	Essex Market Garden for Potatoes, Roots and Vegetables, 4-8-4.....	4-8-4	South Manchester...
21435 ²	Essex Market Garden for Potatoes, Roots and Vegetables, 4-8-4.....	4-8-4	Wallingford.....
21350	Essex Potato Phosphate, 4:8-7.....	4-8-7	South Manchester...
21354	Essex Tobacco, 5-4-5.....	5-4-5	East Granby.....

¹ See Table XV, p. 55.² See Note, p. 56.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Dealer's cash price per ton.	Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
	In nitrates.	In ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available."	As muriate.	Total.	
	%	%	%	%	%	%	%	%	%	%	%	
\$47.50	0.73	0.87	0.61	0.51	2.72	3.31	0.73	9.03	8.30	3.60	3.60	21088
39.35	0.04	0.46	0.70	0.50	1.70	2.07	0.55	8.33	7.78	3.03	3.03	21089
....	1.07	0.03	0.08	2.93	4.11	5.00	0.33	4.68	4.35	0.54	5.22	21302
45.00	0.39	0.81	0.34	0.66	2.20	2.67	0.73	9.05	8.32	3.67	3.67	21086
33.00	0.54	0.46	0.20	0.66	1.86	2.26	0.83	8.70	7.87	2.57	2.57	21087
50.70	0.93	1.23	0.44	0.63	3.23	3.93	0.90	8.66	7.76	7.40	7.40	21197
52.00	2.70	1.14	0.48	0.64	4.96	6.03	0.90	7.30	6.40	4.51	4.51	21196
60.00	1.04	0.04	none	3.12	4.20	5.11	0.30	4.84	4.54	0.32	3.32	21359
....	0.04	1.10	0.24	0.34	1.72	2.09	0.45	8.44	7.99	1.95	1.95	21550
41.00	0.63	1.21	0.24	0.42	2.50	3.04	1.14	13.29	12.15	3.00	3.00	21085
41.50	0.83	1.78	0.30	0.37	3.28	3.99	0.65	8.90	8.25	3.65	4.03	21084
43.50	0.98	1.82	0.45	0.33	3.58	4.35	0.63	9.50	8.87	5.89	5.89	21291
43.65	0.02	2.56	0.52	0.90	4.00	4.86	0.58	10.18	9.60	5.91	5.91	21203
44.00	0.15	2.53	0.46	1.00	4.14	5.03	0.93	11.05	10.12	5.02	5.02	21202
45.90	0.19	4.53	0.44	0.56	5.72	6.95	0.63	9.10	8.47	2.93	2.93	21299
71.00	1.36	0.46	0.64	2.52	4.98	6.05	1.48	8.03	6.55	2.58	7.07	21528
61.10	0.18	1.22	0.46	3.80	5.66	6.88	0.35	4.50	4.15	1.04	5.40	21515
....	1.00	0.16	0.21	3.77	5.14	6.25	0.18	5.98	5.80	1.46	5.30	21527
36.00	0.90	0.06	0.25	0.44	1.65	2.01	0.63	9.30	8.67	2.39	2.39	21079
41.00	0.66	1.00	0.19	0.61	2.46	2.99	0.43	9.18	8.75	4.57	4.57	21078
56.00	1.00	0.80	0.57	0.91	3.28	3.99	0.50	7.03	6.53	10.16	10.16	21351
50.00	0.99	0.83	0.63	0.69	3.14	3.82	0.73	9.23	8.50	3.88	3.88	21298
43.00	1.02	0.88	0.47	1.04	3.41	4.14	0.65	9.10	8.45	4.28	4.28	21435
53.00	0.89	1.11	0.34	0.98	3.32	4.04	0.60	8.75	8.15	6.61	6.61	21350
59.75	1.24	0.27	0.70	1.75	3.96	4.81	0.85	5.58	4.73	0.60	5.56	21354

TABLE XVI. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
L. T. Frisbie Co., New Haven.			
21093	Frisbie's 5-8-7.....	5-8-7	West Cheshire.....
20904	Frisbie's 5-10-5.....	5-10-5	Woodmont.....
21100	Frisbie's Corn and Grain Fertilizer 2-8-2.....	2-8-2	Jewett City.....
21092 ¹	Frisbie's Market Garden, 4-8-6.....	4-8-6	West Cheshire.....
21267 ¹	Frisbie's Market Garden, 4-8-6.....	4-8-6	Norwich.....
21511	Frisbie's Special, 3-8-4.....	3-8-4	Jewett City.....
21099 ¹	Frisbie's Special Vegetable and Potato Grower, 4-8-4.....	4-8-4	Guilford.....
21265 ²	Frisbie's Special Vegetable and Potato Grower, 4-8-4.....	4-8-4	West Cheshire.....
21353	Frisbie's Tobacco Grower, 5-4-5.....	5-4-5	Rockville.....
21352 ¹	Frisbie's Tobacco Manure, 5-8-6.....	5-8-6	Rockville.....
21574 ²	Frisbie's Tobacco Manure, 5-8-6.....	5-8-6	Burnside.....
21349	Frisbie's Top Dresser, 7-5-4.....	7-5-4	Wethersfield.....
International Agricultural Corp., Boston, Mass.			
21372	Buffalo Complete Tobacco.....	4-4-4	East Granby.....
21374	Buffalo Economy.....	2-8-2	Wallingford.....
21375	Buffalo High Grade Manure.....	4-6-10	Wallingford.....
21373	Buffalo New England Special.....	2-12-4	East Granby.....
21377	Buffalo Tobacco Producer.....	5.5-5-5.5	North Granby.....
21376 ¹	Buffalo Top Dresser and Starter.....	7-6-5	Wallingford.....
Lowell Fertilizer Co., Boston, Mass.			
20913	Lowell 2-8-3, Vegetables and Grain.	2-8-3	Cheshire.....
21369	Lowell 4-6-10, Potatoes and Vegeta- bles.....	4-6-10	Moosup.....
20912	Lowell 4-8-4 for Potatoes, Corn and Vegetables.....	4-8-4	Cheshire.....
21094	Lowell 5-8-7 for Potatoes and Vege- tables.....	5-8-7	Southington.....
21098 ¹	Lowell Animal Brand, 3-8-4.....	3-8-4	Suffield.....
21367	Lowell Bone Fertilizer, 2-8-2, for Corn, Grain, Grass and Vegetables	2-8-2	Southington.....
21371	Lowell Potato Phosphate, 4-8-7.....	4-8-7	Warehouse Point.....
21378	Lowell 5-4-5 for Tobacco, Fruits and Vines.....	5-4-5	Granby.....
21370	Lowell Tobacco Manure, 5-8-6.....	5-8-6	Warehouse Point.....
20914	Lowell 7-5-2 Top Dresser.....	7-5-2	Cheshire.....

¹ See Table XV, p. 55.² See Note, p. 56.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Dealer's cash price per ton.	Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
	In nitrates.		In ammonia.	Organic, water-soluble.	Organic, water-insoluble.		Citrate-insoluble.	Total.	So-called "Available."	As muriate.	Total.	
	%	%	%	%	%		%	%	%	%	%	
\$49.00	1.60	0.88	0.57	0.95	4.00	4.86	0.90	9.70	8.80	6.99	6.99	21093
46.00	1.75	0.98	0.62	0.78	4.13	5.02	0.20	10.84	10.64	5.34	5.34	20904
34.00	0.91	0.03	0.34	0.36	1.64	1.99	0.65	8.65	8.00	2.01	2.01	21100
45.00	1.03	0.73	0.43	0.73	2.92	3.55	0.40	8.88	8.48	6.74	6.74	21092
44.00	1.04	0.74	0.52	0.64	2.94	3.57	0.48	8.88	8.40	6.37	6.37	21267
39.00	1.02	0.38	0.15	0.88	2.43	2.95	1.16	9.20	8.04	4.01	4.01	21511
38.75	1.20	0.52	0.56	0.74	3.02	3.67	1.33	9.53	8.20	3.81	3.81	21099
43.00	1.30	0.48	0.62	0.78	3.18	3.87	1.30	9.74	8.44	0.45	3.94	21265
61.00	1.23	0.27	0.55	1.90	3.95	4.80	1.05	5.63	4.58	0.58	5.35	21353
63.00	1.46	0.24	0.88	0.92	3.50	4.26	0.55	9.18	8.63	0.82	6.67	21352
.....	.....	.....	.....	.....	4.28	5.20	1.25	10.38	9.13	0.94	6.56	21574
.....	4.36	0.02	0.64	0.62	5.64	6.86	0.68	6.13	5.45	4.44	4.44	21349
.....	0.09	1.31	0.10	1.82	3.32	4.04	0.25	4.58	4.33	0.20	4.07	21372
36.50	0.34	0.26	0.38	0.82	1.80	2.19	2.20	10.58	8.38	2.39	2.39	21374
47.00	1.00	0.56	0.50	1.24	3.30	4.01	0.85	7.28	6.43	8.60	8.60	21375
.....	0.93	0.07	0.31	0.49	1.80	2.19	0.70	13.15	12.45	4.40	4.40	21373
60.60	0.22	2.42	0.03	1.83	4.50	5.47	0.23	6.05	5.82	0.58	5.47	21377
56.00	0.91	2.45	0.24	1.80	5.40	6.57	0.60	7.50	6.90	1.57	4.78	21376
30.00	0.84	0.08	0.21	0.53	1.66	2.02	0.43	9.85	9.42	3.08	3.08	20913
53.00	1.10	0.82	0.53	0.84	3.29	4.00	0.50	6.93	6.43	10.21	10.21	21369
37.00	1.03	0.82	0.39	1.00	3.24	3.94	0.53	8.83	8.30	4.05	4.05	20912
59.00	1.32	1.26	0.57	0.93	4.08	4.96	0.55	9.06	8.51	6.88	6.88	21094
40.00	0.79	0.46	0.31	0.68	2.24	2.72	0.53	8.81	8.28	4.04	4.04	21098
41.00	0.55	0.08	0.45	0.56	1.64	1.99	0.68	9.10	8.42	2.10	2.10	21367
39.75	1.02	0.90	0.24	1.08	3.24	3.94	0.73	9.18	8.45	6.81	6.81	21371
58.00	1.21	0.29	0.63	1.70	3.83	4.66	1.08	5.60	4.52	0.47	5.35	21378
57.75	1.56	0.36	0.77	1.24	3.93	4.78	0.75	9.00	8.25	1.02	6.33	21370
47.00	0.17	4.88	0.25	0.19	5.49	6.67	0.10	6.00	5.90	2.13	2.13	20914

TABLE XVI. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
	<i>Sampled by Station:</i> Mapes Fertilizer and Peruvian Guano Co., New York.		
21096	The Mapes Connecticut Valley Special.....	6-4-7	Suffield.....
21097	The Mapes Corn Manure.....	3-8-3	Suffield.....
21387	The Mapes General Tobacco Manure.....	5-4-5	Glastonbury.....
21102	The Mapes General Truck Manure.....	5-6-5	Hartford.....
21385	The Mapes General Use Manure.....	3-6-4	Hartford.....
21390	The Mapes Grain Brand.....	2-8-2	Hartford.....
21384	The Mapes Onion Manure.....	4-6-4	Hartford.....
21095	The Mapes Potato Manure.....	4-7-5	Suffield.....
21380 ²	The Mapes Tobacco Ash Constituents.....	1-4-15	Suffield.....
21548 ²	The Mapes Tobacco Ash Constituents.....	1-4-15	West Suffield.....
20959	The Mapes Tobacco Manure Wrapper Brand.....	7.5-2-10.5	Warehouse Point.....
20960 ²	The Mapes Tobacco Starter Improved.....	5-6-1	Warehouse Point.....
21268 ²	The Mapes Tobacco Starter Improved.....	5-6-1	Hartford.....
21553 ¹	The Mapes Top Dresser.....	10-4-2	Hartford.....
21103 ²	The Mapes Top Dresser.....	10-4-2	Hartford.....
	Meech & Stoddard, Inc., Middletown.		
21544	Bixota Brand Fertilizer, 2-8-2.....	2-8-2	Factory.....
21543	Bixota Brand Fertilizer, 3-8-3.....	3-8-3	Factory.....
21542	Bixota Brand Fertilizer, 4-8-4.....	4-8-4	Factory.....
21541	Bixota Brand Fertilizer, 5-8-7.....	5-8-7	Factory.....
	Nature's Plant Food Co., Boston, Mass.		
21403 ¹	Nature's Plant Food.....	1.2-3-2	Groton.....
	New England Fertilizer Co., Boston, Mass.		
21386	New England 2-8-3 for Vegetables and Grain.....	2-8-3	Meriden.....
21391	New England 4-8-4 for Potatoes and Vegetables.....	4-8-4	Hamburg.....
21382	New England Corn Phosphate 2-8-2 for Grain and Vegetable.....	2-8-2	Rockville.....
21381	New England Potato Phosphate 4-8-7 for Potatoes and Vegetables	4-8-7	Rockville.....

¹ See Table XV, p. 55.² See Note, p. 56.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Dealer's cash price per ton.	Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.	
	In nitrates.		In ammonia.	Organic, water-soluble.	Organic, water-insoluble.		Citrate-insoluble.			Total.			
	%	%	%	%	%		%	%	%	%	%		
\$68.00	2.07	0.54	0.92	1.72	5.25	6.38	0.48	5.53	5.05	1.62	8.08	21096	
40.00	0.84	0.32	0.27	0.84	2.27	2.76	1.48	10.53	9.05	1.98	3.02	21097	
.....	1.41	0.16	1.08	2.06	4.71	5.73	0.78	6.33	5.55	0.96	5.57	21387	
46.00	2.02	0.48	0.61	1.06	4.17	5.07	0.85	8.58	7.73	2.58	5.28	21102	
38.00	0.78	0.44	0.29	0.99	2.50	3.04	1.10	8.85	7.75	3.54	4.15	21385	
34.00	0.05	0.28	0.40	1.23	1.96	2.38	2.05	10.18	8.13	2.00	2.00	21390	
41.80	1.88	0.48	0.30	0.99	3.65	4.44	2.03	9.30	7.27	0.74	4.56	21384	
45.00	1.77	0.41	0.46	1.02	3.66	4.45	1.15	9.78	8.63	2.59	5.17	21095	
50.00	0.15	0.28	0.38	0.57	1.38	1.68	1.83	6.70	4.87	1.30	10.85	21380	
.....	0.06	0.26	0.37	0.63	1.32	1.61	1.20	7.00	5.80	1.18	12.86	21548	
73.00	3.53	0.55	1.21	1.58	6.87	8.35	1.38	5.05	3.67	1.40	11.51	20959	
45.00	1.97	0.44	0.49	0.81	3.71	4.51	0.73	7.93	7.20	0.70	0.97	20960	
42.75	2.24	0.56	0.57	0.94	4.31	5.24	2.30	8.19	5.89	0.86	1.20	21268	
.....	5.21	0.40	1.09	0.72	7.42	9.02	0.65	6.08	5.43	2.62	2.62	21553	
59.85	5.11	0.41	1.20	1.07	7.79	9.47	1.05	6.83	5.78	3.35	3.35	21103	
39.00	0.87	0.03	0.70	0.44	2.04	2.48	2.52	10.49	7.97	2.46	2.46	21544	
45.00	1.86	0.06	0.62	0.40	2.94	3.57	2.06	9.58	7.52	3.28	3.28	21543	
48.00	2.38	0.08	0.64	0.38	3.48	4.23	1.78	9.88	8.10	3.91	3.91	21542	
54.00	3.20	0.06	0.74	0.28	4.28	5.20	2.10	10.02	7.92	6.95	6.95	21541	
.....	.....	.....	.....	0.87	1.06	1.98	2.46	0.48	2.56	2.56	2.56	21403
37.00	1.01	0.12	0.33	0.72	2.18	2.65	0.60	9.50	8.90	3.59	3.59	21386	
49.00	0.82	0.90	0.59	0.99	3.30	4.01	0.65	9.00	8.35	4.08	4.08	21391	
44.00	0.72	0.10	0.29	0.61	1.72	2.09	0.63	9.45	8.82	2.41	2.41	21382	
54.00	1.06	0.92	0.32	1.00	3.30	4.01	0.78	9.10	8.32	6.27	6.27	21381	

TABLE XVI. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
New England Fertilizer Co., Boston, Mass.—Continued.			
21383	New England Superphosphate 3-8-4, for all crops.....	3-8-4	Rockville.....
21547	New England Tobacco Manure, 5-8-6.....	5-8-6	Glastonbury.....
21389	New England Tobacco, 5-4-5 for Tobacco, Fruits and Vines.....	5-4-5	West Suffield.....
Nitrate Agencies Co., New York.			
21388	Naco Brand No. 12 Peruvian Guano Mixture.....	5.25-10.5 -5.25	Stamford.....
21716	Naco Brand Peruvian Guano.....	12-10-2.5	Suffield.....
Olds & Whipple, Inc., Hartford.			
21393	Complete Corn, Potato and Onion Fertilizer.....	4-8-4	New Britain.....
21398	Complete Corn, Onion and Potato Fertilizer.....	3-8-2	Suffield.....
21395	Complete Tobacco Fertilizer.....	5-3-5	South Windsor.....
21399	Fish and Potash.....	3-6-5	South Windsor.....
21419	High Grade Potato Fertilizer.....	5-8-7	New Britain.....
21394	High Grade Starter and Potash Com- pound.....	5-4-15	Factory.....
Parmenter & Polsey Fertilizer Co., Boston, Mass.			
21429	4-8-4 for Potatoes, Corn and Vegeta- bles.....	4-8-4	New Britain.....
21424	Plymouth Rock Brand 3-8-4 for all Crops.....	3-8-4	Gaylordsville.....
Frank S. Platt Co., New Haven			
21420 ¹	Plateo Special, 4-8-6.....	4-8-6	Factory.....

¹ See Table XV, p. 55.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Dealer's cash price per ton.	Nitrogen.						Ammonia equivalent to total nitrogen.	Phosphoric Acid.		Potash.		Station No.
	In nitrates.	In ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total.	Citrate-insoluble.		Total.	So-called "Available."	As muriate.	Total.	
\$48.00	0.76	0.82	0.21	0.66	2.45	2.98	0.40	8.78	8.38	3.88	3.88	21383
.....	1.85	0.18	0.73	1.34	4.10	4.98	0.60	9.01	8.41	1.34	6.33	21547
54.00	1.25	0.28	1.49	1.19	4.21	5.12	1.00	5.75	4.75	0.64	5.30	21389
.....	1.08	1.90	0.46	0.71	4.15	5.05	0.93	11.70	10.77	5.33	5.66	21388
80.00	1.14	4.38	0.49	5.00	11.01	13.39	1.71	12.00	10.29	2.42	2.83	21716
43.70	1.56	0.07	0.21	1.52	3.36	4.09	1.45	9.60	8.15	4.30	4.30	21393
39.42	1.54	0.02	0.08	1.12	2.76	3.36	1.20	9.65	8.45	1.17	2.31	21398
55.57	0.98	0.06	0.19	3.09	4.32	5.25	0.25	4.05	3.80	0.77	5.95	21395
42.75	1.01	0.14	none	1.54	2.69	3.27	0.60	7.88	7.28	5.39	5.39	21399
55.35	1.43	0.23	1.10	1.75	4.51	5.48	2.25	10.30	8.05	3.80	7.61	21419
61.75	1.46	0.06	0.51	2.10	4.13	5.02	0.25	4.50	4.25	1.93	16.00	21394
44.00	1.08	0.86	0.54	0.73	3.21	3.90	0.80	9.10	8.30	4.20	4.20	21429
39.75	0.93	0.11	0.54	0.90	2.48	3.02	0.68	9.40	8.72	3.74	3.74	21424
47.00	1.05	0.71	0.60	0.61	2.97	3.61	0.99	8.83	7.84	6.27	6.27	21420

TABLE XVI. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
<i>Sampled by Station:</i>			
The Rogers & Hubbard Co., Portland.			
21454	R. & H. All Soils-All Crops.....	4-8-4	Hartford.....
21421	Hubbard's "Bone Base" Fertilizer for Oats and Top Dressing.....	10-3-8	Glastonbury.....
21422	Hubbard's "Bone Base" Fertilizer for Seeding Down.....	3-5-6	Factory.....
21457 ¹	Hubbard's "Bone Base" Soluble Corn and General Crops Manure.	3-8-6	Norwich.....
21460	Hubbard's "Bone Base" Soluble Potato Manure.....	6-8-5	Norwich.....
21464	R. & H. Climax Tobacco Brand.....	5-4-4	Glastonbury.....
21459	R. & H. Corn and Grain Fertilizer.....	1-10-3	Norwich.....
21467	R. & H. Garden Fertilizer.....	2-8-4	Hartford.....
21462	R. & H. High Potash Fertilizer.....	3-8-10	Somers.....
21458	R. & H. Potato Fertilizer.....	2-8-4	Norwich.....
21456	R. & H. Tobacco Grower, Vegetable Formula.....	6-4-4	Windsor.....
21465	R. & H. Soluble Tobacco Manure.....	6-8-10	Somerville.....
F. S. Royster Guano Co., Baltimore, Md.			
21471	Royster's Bully Guano.....	2-8-5	Glastonbury.....
21477	Royster's Fish, Flesh and Fowl.....	2-8-3	Danielson.....
21469 ¹	Royster's Quality Truckee.....	4-8-7	Glastonbury.....
21476 ¹	Royster's Top Dresser.....	7-6-5	Glastonbury.....
20905	Royster's Truckee's Delight.....	4-8-4	Milford.....
21468	Royster's Valley Tobacco Formula.....	5-4-5	Glastonbury.....
Sanderson Fertilizer & Chemical Co., New Haven.			
21070	Atlantic Coast Bone, Fish and Potash.....	2-8-3	Warehouse Point.....
21069	Complete Tobacco Grower.....	5-4-5	Warehouse Point.....
21472	Corn Superphosphate.....	2-8-2	Seymour.....
21139	Formula A.....	4-8-4	Guilford.....
21475	Formula B.....	4-8-6	Cromwell.....
21486 ¹	Kelsey's Bone, Fish and Potash.....	3-10-3	North Haven.....
21484	Potato Manure.....	3-8-4	West Cheshire.....
21489	Top Dressing for Grass and Grain.....	6-6-4	East Haven.....

¹ See Table XV, p. 55.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Dealer's cash price per ton.	Nitrogen.						Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.		
	In nitrates.		Organic, water-soluble.	Organic, water-insoluble.	Total.	Citrate-insoluble.		Total.		So-called "Available."	As muriate.	Total.			
	In ammonia.	%						%	%						
\$54.00	2.22	0.16	0.54	0.46	3.38	4.11	2.29	9.85	7.56	3.91	3.91	21454			
.....	6.83	0.03	0.90	0.35	8.11	9.86	3.80	8.15	4.35	3.40	7.10	21421			
49.25	1.08	0.13	0.38	1.15	2.74	3.33	5.30	12.30	7.00	5.49	5.49	21422			
51.00	1.13	0.16	0.52	0.66	2.47	3.00	3.63	11.63	8.00	5.08	5.08	21457			
64.00	3.17	0.15	0.92	0.76	5.00	6.08	2.94	9.99	7.05	1.14	5.49	21460			
54.00	1.43	0.05	0.46	1.92	3.86	4.69	0.85	5.20	4.35	0.61	4.48	21464			
38.00	none	0.13	0.24	0.56	0.93	1.13	2.03	12.60	10.57	2.57	2.57	21459			
47.00	0.49	0.17	0.56	0.52	1.74	2.11	2.23	10.17	7.94	3.37	3.37	21467			
46.00	1.33	0.09	0.63	0.48	2.53	3.08	2.87	10.76	7.89	9.73	9.73	21462			
42.00	0.60	0.12	0.56	0.34	1.62	1.97	2.01	9.89	7.88	3.66	3.66	21458			
.....	1.46	0.08	0.12	3.32	4.98	6.05	1.08	5.50	4.42	0.57	4.10	21456			
61.00	3.47	0.15	1.23	0.67	5.52	6.71	2.19	9.70	7.51	1.48	10.11	21465			
.....	0.11	1.22	none	0.41	1.74	2.11	0.75	9.13	8.38	4.97	4.97	21471			
36.75	0.08	1.02	none	0.45	1.55	1.88	1.27	9.03	7.76	3.31	3.31	21477			
.....	0.08	2.08	0.24	0.65	3.05	3.71	1.08	9.15	8.07	6.90	6.90	21469			
.....	0.78	2.82	0.46	1.25	5.31	6.46	0.77	6.68	5.91	4.86	4.86	21476			
43.00	0.10	2.22	0.23	0.64	3.19	3.88	0.90	8.87	7.97	3.91	3.91	20905			
57.25	0.45	0.94	0.08	2.40	3.87	4.71	0.40	4.98	4.58	0.49	4.95	21468			
.....	0.04	0.58	0.42	0.64	1.68	2.04	1.15	9.48	8.33	3.02	3.02	21070			
35.00	0.87	0.15	0.19	2.98	4.19	5.09	0.28	4.58	4.30	0.61	4.95	21069			
38.00	0.12	0.50	0.34	0.66	1.62	1.97	0.90	9.10	8.20	2.15	2.15	21472			
48.00	0.64	1.37	0.60	0.66	3.27	3.98	1.23	9.33	8.10	4.02	4.02	21139			
45.00	0.76	1.00	0.32	1.42	3.50	4.26	1.69	9.77	8.08	2.68	5.98	21475			
.....	0.36	0.74	0.43	0.73	2.26	2.75	0.88	10.87	9.99	3.05	3.05	21486			
45.00	0.42	0.90	0.34	0.78	2.44	2.97	0.68	8.80	8.12	4.17	4.17	21484			
49.00	2.85	1.18	0.33	0.64	5.00	6.08	0.98	7.00	6.02	3.82	3.82	21489			

TABLE XVI. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
	<i>Sampled by Station:</i> M. L. Shoemaker & Co., Philadelphia, Pa.		
21488	Swift-Sure Cotton Seed Mixture, 5-4-5.....	5-4-5	New Milford.....
21491	Swift-Sure Super Phosphate Crop Grower, 4-8-4.....	4-8-4	Hartford.....
21487	Swift-Sure Super Phosphate Potato No. 1, 4-8-5.....	4-8-5	New Milford.....
21136	Swift-Sure Super Phosphate Tobacco and General Use, 3-10-3.....	3-10-3	Thompsonville.....
	Springfield Rendering Co., Springfield, Mass.		
21492 ¹	4-8-6.....	4-8-6	Suffield.....
21135	Animal Brand, 3-8-4.....	3-8-4	Windsor Locks.....
21142	Market Garden Grower and Top Dresser, 5-8-7.....	5-8-7	Stafford Springs.....
21485 ¹	Special Potato, Onion and Vegetable, 4-8-4.....	4-8-4	Stafford Springs.....
21530	Tobacco Special, 5-4-5.....	5-4-5	Windsor Locks.....
	Virginia-Carolina Chemical Co., New York.		
21496	Aroostook Potato Grower.....	5-8-7	North Haven.....
21138	Champion Brand.....	4-8-4	Rockville.....
21140	Double Owl Brand.....	4-8-6	Guilford.....
21495	Eureka Brand.....	2-8-10	North Haven.....
21141 ¹	Fish, Phosphate and Potash Brand.....	2-8-2	Danielson.....
21137	Indian Chief Brand.....	5-4-5	Hazardville.....
21131	Owl Brand.....	2-8-3	North Haven.....
21497	Perfection Brand.....	3-9-5	North Haven.....
21504	Plymouth Brand.....	2-12-4	New Hartford.....
	Whitman & Pratt Rendering Co., Boston, Mass.		
21120	Whitman & Pratt's 4-8-4 Brand.....	4-8-4	Norwich.....
	Wilcox Fertilizer Co., Mystic.		
21499	4-8-4, Fertilizer.....	4-8-4	New London.....
21319 ¹	5-8-7.....	5-8-7	Factory.....
21115	Corn Special.....	3-10-4	Mystic.....
21116	Fish and Potash.....	3-8-3	Mystic.....
21501 ¹	Grass and Truck Fertilizer.....	5-8-4	Factory.....
21500 ¹	Potato and Vegetable Phosphate.....	4-8-6	Mystic.....
21123	Tobacco Special.....	5-4-5	Ellington.....

¹ See Table XV, p. 55.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Continued.

Dealers cash price per ton.	Nitrogen.						Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
	In nitrates.	In ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total.	Citrate-insoluble.		Total.	So-called "Available."	As muriate.	Total.		
	%	%	%	%	%	%	%	%	%	%	%		
\$60.00	0.72	0.11	0.14	3.39	4.36	5.30	2.03	8.40	6.37	1.63	6.26	21488	
....	1.17	0.11	0.28	1.50	3.06	3.72	0.95	12.13	11.18	2.68	3.54	21491	
48.00	1.15	0.09	0.45	1.67	3.36	4.09	3.40	12.78	9.38	0.54	5.39	21487	
52.00	1.16	0.04	0.34	1.38	2.92	3.55	2.60	13.38	10.78	0.51	3.33	21136	
45.25	0.56	0.70	0.72	1.02	3.00	3.65	0.65	9.13	8.48	6.02	6.02	21492	
45.00	1.14	none	0.60	0.75	2.49	3.03	0.38	8.88	8.50	4.13	4.13	21135	
50.00	1.48	0.05	1.30	1.33	4.16	5.06	0.60	9.18	8.58	7.16	7.16	21142	
44.00	1.43	0.05	0.79	0.78	3.05	3.71	0.55	9.03	8.48	4.04	4.04	21485	
....	1.48	0.06	0.58	1.80	3.92	4.77	0.28	5.38	5.10	0.80	5.43	21530	
49.00	0.08	3.69	0.07	0.25	4.09	4.97	0.93	9.53	8.60	7.14	7.14	21496	
50.00	0.11	2.57	0.29	0.30	3.27	3.98	1.30	9.35	8.05	4.04	4.04	21138	
40.75	0.12	2.70	0.15	0.21	3.18	3.87	1.40	10.53	9.13	6.04	6.04	21140	
40.00	none	1.21	0.14	0.23	1.58	1.92	1.10	9.23	8.13	9.97	9.97	21495	
31.00	0.04	0.66	0.43	0.31	1.44	1.75	1.68	9.95	8.27	1.90	1.90	21141	
54.25	0.43	0.46	none	3.29	4.18	5.08	0.55	5.25	4.70	0.53	4.89	21137	
35.00	0.03	1.18	0.33	0.16	1.70	2.07	1.55	10.59	9.04	3.17	3.17	21131	
41.00	0.02	2.10	0.26	0.22	2.60	3.16	1.45	10.78	9.33	4.92	4.92	21497	
35.00	0.07	1.29	0.04	0.18	1.58	1.92	1.35	13.88	12.53	4.22	4.22	21504	
40.00	1.30	0.18	0.11	1.69	3.28	3.99	5.43	14.63	9.20	4.06	4.06	21120	
45.00	1.45	0.30	0.53	0.87	3.15	3.83	2.05	10.15	8.10	4.00	4.00	21499	
....	1.94	0.08	0.88	1.09	3.99	4.85	2.08	10.08	8.00	3.38	6.80	21319	
39.00	1.23	0.09	0.48	0.74	2.54	3.09	1.50	11.28	9.78	4.26	4.26	21115	
38.50	0.68	0.14	0.35	1.23	2.40	2.92	0.78	8.78	8.00	3.31	3.31	21116	
....	1.81	0.09	0.83	1.21	3.94	4.79	2.33	10.34	8.01	3.43	4.03	21501	
44.90	1.66	0.01	0.60	0.82	3.09	3.76	1.63	10.05	8.42	2.14	5.79	21500	
60.00	0.74	0.10	0.16	2.96	3.96	4.81	0.40	6.23	5.83	0.61	6.40	21123	

TABLE XVI. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and Brand.	Grade.	Place of Sampling.
21503 ¹	<i>Sampled by Station:</i> S. D. Woodruff & Sons, Orange. Woodruff's Home Mixed	4-8-6	Factory
21122	Worcester Rendering Co., Auburn, Mass.		
21506 ¹	Prosperity Brand Corn and Grain	2-8-2	Putnam
	Prosperity Brand Potato and Vegetable Fertilizer	4-8-4	Norwich
	<i>Sampled by Purchaser:</i>		
20431	American Chemical Specialties Co., Inc., New Jersey. Springfield Carnation Food	2.4-3.25 -3.5	Jewett City
20949	Bowker Fertilizer Co., New York.		
21587	Bowker's Tobacco Fertilizer	5-4-5	Suffield
	Stockbridge Tobacco Fertilizer, 5-4-5	5-4-5	Suffield
	Eastern States Farmers' Exchange, Springfield, Mass.		
21347	7-8-3	7-8-3	Milford
21348	5-8-7	5-8-7	Milford
	The L. T. Frisbie Co., New Haven.		
21220	4-8-6 Fertilizer	4-8-6	Woodmont
21221	5-10-5 Fertilizer	5-10-5	Woodmont
	Mapes Fertilizer and Peruvian Guano Co., New York.		
20948	Potato Manure	4-7-5	Suffield
	Nitrate Agencies Co., New Jersey.		
20629	Genuine Peruvian Guano	12-10-2.5	Suffield

¹ See Table XV, p. 55.² \$4.80 per one hundred pounds.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH—Concluded.

Dealer's cash price per ton.	Nitrogen.					Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
	In nitrates.	In ammonia.	Organic, water-soluble.	Organic, water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available."	As muriate.	Total.	
\$42.00	1.42	0.02	0.63	1.49	3.56	4.33	11.19	13.14	1.95	6.38	6.38	21503
34.50	1.02	0.06	0.30	0.46	1.84	2.24	0.17	8.33	8.16	2.32	2.32	21122
45.00	0.63	0.61	0.37	0.91	2.52	3.06	1.05	9.15	8.10	5.08	5.08	21506
.....	.....	.....	.....	.....	2.16	2.63	2.88	8.84	5.96	.....	3.85	20431
60.25	.....	.....	.....	.....	4.29	5.22	.....	5.00	.....	.....	5.50	20949
	.....	.....	.....	.....	4.19	5.09	0.31	4.63	4.32	.....	5.02	21587
2	.....	.....	.....	.....	5.32	6.47	0.70	9.15	8.45	.....	2.99	21347
2	.....	.....	.....	.....	3.99	4.85	0.68	9.30	8.62	.....	6.53	21348
41.00	.....	.....	.....	.....	3.16	3.84	1.03	9.33	8.30	6.70	6.70	21220
46.00	.....	.....	.....	.....	3.97	4.83	0.18	10.65	10.47	5.08	5.08	21221
.....	.....	.....	.....	.....	2.43	2.95	.....	9.45	.....	.....	4.07	20948
75.00	4.35	.....	.....	.....	15.00	18.24	0.15	9.54	9.39	.....	2.01	20629

SPECIAL MIXTURES AND HOME MIXTURES.

In Table XIX are given analyses of special mixtures prepared by manufacturers according to specifications furnished by the purchasers and also of home mixtures prepared by individuals or firms from raw materials purchased by them. Twenty-six samples of these types were analyzed. Ten of these were sampled by the Station agent and the remainder were submitted by the consumers.

In some cases formulas were submitted with the samples and they are given in Table XVII.

TABLE XVII. FORMULAS FOR SOME OF THE MIXTURES
GIVEN IN TABLE XIX.

Station No.	Cottonseed meal.	Castor pomace.	Fish.	Tankage.	Nitrate of soda.	Sulphate of ammonia.	Bone.	H. G. Sulphate of potash.	Muriate of potash.	Acid phosphate.
20169	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
20169	700	300	300	...	200	...	300	200	...	...
20170	700	300	300	...	200	...	300	200	...	...
21327	500	500	300	...	200	...	300	200	...	...
21326	500	500	300	...	200	...	300	200	...	...
21379	500	500	500	...	...	...	200	300	...	...
20955	...	...	750	100	...	...	200	200	200	750
21330	...	...	1000	...	200	200	...	600	...	...

VII. MISCELLANEOUS FERTILIZERS, AMENDMENTS,
WASTE PRODUCTS, ETC.

WOOD ASHES, ETC.

Sixteen samples have been examined.

The following were submitted by Hatheway & Steane, Hartford; purchased from John Joynt, Lucknow, Canada.:

20963, car No. 89524; **20964**, car No. 30111; **20965**, car No. 43297; **21233**, car No. 8098; **21234**, car No. 1542; **21522**, car No. 35078; **21744**, car No. 108196.

Other samples were:

21010. Sent by Amos D. Bridges' Sons, Inc., Hazardville. Bought of the Ross Brothers Company of Worcester, Mass.

21529. Station agent from F. T. Blish Hardware Co., South Manchester. Bought of John Joynt, Lucknow, Canada.

20892. Sent by A. N. Farnham, New Haven.

20497, **21800**, **21801**. Sent by A. N. Shepard & Son, Hartford. Bought of John Joynt, Lucknow, Canada.

21003. Sent by H. Whitaker, Hazardville. Bought of John Joynt, Lucknow, Canada.

19954. Canadian wood ashes, sent by Steane, Hartman & Co., Hartford.

19807. Sent by Stamford Dyewood Co., Stamford.

TABLE XVIII. ANALYSES OF WOOD ASHES, ETC.

Station No.	Phosphoric acid. %	Water-soluble potash. %	Insoluble material. %	Cost per ton or per unit of potash.
20963	2.35	6.74	11.11	\$5.00
20964	2.35	6.83	9.13	5.00
20965	2.25	6.38	12.73	5.00
21233	2.35	6.36	15.18	.....
21234	2.50	6.67	18.32	.....
21522	2.53	6.39	13.09	.....
21744	2.17	6.75	9.17	33.33
21010	1.38	2.73	16.84	23.00
21529	1.18	2.05	12.63	27.50
20892	3.07	7.19	8.45	.....
20497	1.85	5.31	12.50	.....
21800	1.68	7.34	8.10	.....
21801	1.68	6.13	16.13	.....
21003	2.10	6.53	12.20	.....
19954	2.28	4.12	7.15	.....
19807 ¹	1.47	0.03	5.20	.....

Samples **21010** and **21529** were of inferior quality. Sample **19807** was submitted as "wood ashes". It was, however, a waste product, in the form of a slag or clinker, consisting chiefly of lime.

SHEEP MANURE, ETC.

Analyses of seven samples of sheep manure and one of poultry manure are given in Table XX. All were sampled by the Station agent.

21148. Sold by American Agricultural Chemical Co., N. Y. Sampled from stock of Bristol Grain & Supply Co., Bristol.

21283. Sold by Armour Fertilizer Works, N. Y. Sampled from stock of Rockville Grain & Coal Co., Rockville.

21174. Sold by Berkshire Fertilizer Co., Bridgeport. Sampled at the factory.

20911. Sold by Natural Guano Co., Aurora, Ill. Sampled from stock of Cheshire Reformatory, Cheshire.

21418. Sold by Pacific Manure & Fertilizer Co., Chicago, Ill. Sampled from stock of Lightbourn & Pond Co., New Haven.

20957. Sold by Pulverized Manure Co., Chicago, Ill. Sampled from stock of S. P. Strople, New Britain.

21482. Sold by Sanderson Fertilizer & Chemical Co., New Haven. Sampled at the factory.

21423. Sold by Premier Poultry Manure Co., Chicago, Ill. Sampled from the stock of Plumbing and Supply Co., South Manchester.

¹ Lime (CaO) 81.99 per cent.

TABLE XIX. ANALYSES OF SPECIAL MIXTURES

Station No.	Manufacturer.	Grade.	Place of Sampling.	Dealer's cash price per ton.
20169	<i>Sampled by Station:</i> American Agricultural Chemical Co., New York.....	.....	Arthur Manning, So. Manchester	\$66.00
20170	American Agricultural Chemical Co., New York.....	.....	Arthur Manning, So. Manchester	66.00
21327	American Agricultural Chemical Co., New York.....	.....	Arthur Manning, So. Manchester	.....
20955	Apothecaries Hall Co., Waterbury	.....	Conn. School for Boys, Meriden	.....
21110	Olds & Whipple, Inc., Hartford	.....	Allied Tobacco Co., Hartford	.....
21111	Olds & Whipple, Inc., Hartford	.....	Allied Tobacco Co., Hartford	.....
21546	Olds & Whipple, Inc., Hartford	.....	G. H. Carrier, Glastonbury	.....
21326	Olds & Whipple, Inc., Hartford	.....	Arthur Manning, So. Manchester	.....
21379	Olds & Whipple, Inc., Hartford	.....	C. M. Hickey, East Hartford	.....
21109	Olds & Whipple, Inc., Hartford	.....	L. W. Newberry, So. Windsor	.....
21330	<i>Sampled by Purchaser:</i> L. T. Frisbie Co., New Haven..	.....	F. L. Porter, So. Windsor	65.00
21000	National Fertilizer Co., Boston.	7-3-7	H. Whitaker, Hazardville	.....
21001	Olds & Whipple, Inc., Hartford.	6.8-3.2-6.4	H. Whitaker, Hazardville	.....
21248	Olds & Whipple, Inc., Hartford.	6.2-6-5	Harold M. Newberry, East Windsor Hill	61.00
21249	Olds & Whipple, Inc., Hartford.	6.2-6-5	Harold M. Newberry, East Windsor Hill	61.00
21333	Olds & Whipple, Inc., Hartford..	6.2-6-5	Harold M. Newberry, East Windsor Hill	61.00
21331	Olds & Whipple, Inc., Hartford..	7.6-6.5-7.8	Harold M. Newberry, East Windsor Hill	69.40
21332	Olds & Whipple, Inc., Hartford..	7.6-6.1-7.8	Harold M. Newberry, East Windsor Hill	57.90
21002	The Rogers & Hubbard Co., Middletown	6-4-4	H. Whitaker, Hazardville	.....
20647	.....	.....	American Sumatra Tobacco Co., Bloomfield	.....
20659	.....	.....	American Sumatra Tobacco Co., Bloomfield	.....
20660	.....	.....	American Sumatra Tobacco Co., Bloomfield	.....
20661	.....	.....	American Sumatra Tobacco Co., Bloomfield	.....
20735	.....	.....	American Sumatra Tobacco Co., Bloomfield	.....
20736	.....	.....	American Sumatra Tobacco Co., Bloomfield	.....
21567	.....	.....	Ernest N. Austin, Suffield	55.00

AND HOME MIXTURES.

In nitrates.	Nitrogen.				Ammonia equivalent to total nitrogen.	Phosphoric Acid.			Potash.		Station No.
	In ammonia.	Organic, Water-soluble.	Organic, Water-insoluble.	Total.		Citrate-insoluble.	Total.	So-called "Available."	As muriate.	Total.	
%	%	%	%	%	%	%	%	%	%	%	
....	5.78	7.03	5.30	0.39	6.17	20169
....	5.86	7.12	4.99	1.67	6.39	20170
1.63	0.14	4.29	6.06	7.37	1.85	6.80	4.95	1.09	6.29	21327	
0.95	....	....	4.00	4.86	....	7.45	....	8.67	10.37	20955
1.32	0.10	4.15	5.57	6.77	1.25	6.65	5.40	0.85	6.18	21110	
1.28	0.08	4.15	5.51	6.70	1.15	6.63	5.48	1.16	5.77	21111	
1.38	2.03	0.53 + 1.74	5.68	6.91	1.03	8.28	7.25	1.57	8.04	21546	
1.54	0.08	4.55	6.17	7.50	1.18	5.95	4.77	0.66	5.86	21326	
....	....	....	4.72	5.74	0.48	8.80	8.32	0.96	8.41	21379
1.75	0.07	3.78	5.60	6.81	0.35	6.65	6.30	1.40	8.20	21109	
present	....	....	7.34	8.92	0.35	3.93	3.58	1.34	13.74	21330
0.95	0.13	5.06	6.14	7.47	0.28	4.00	3.72	0.90	6.93	21000	
0.10	0.88	4.68	5.66	6.88	0.20	3.83	3.63	0.74	6.67	21001	
0.08	1.14	3.92	5.14	6.25	0.20	6.23	6.03	0.76	7.59	21248	
0.17	1.17	4.02	5.36	6.52	0.30	6.38	6.08	0.78	6.44	21249	
....	....	....	5.00	6.08	0.23	6.68	6.45	2.23	6.25	21333
present	....	....	6.00	7.29	1.53	7.10	5.57	0.93	7.85	21331
present	....	....	4.63	5.63	0.30	7.05	6.75	0.97	8.58	21332
1.47	0.09	3.64	5.20	6.32	1.00	5.28	4.28	0.69	4.08	21002	
....	....	....	5.54	6.74	....	5.40	....	0.32	7.86	20647
present	0.07	....	5.56	6.76	....	5.27	....	0.27	5.22	20659
present	0.07	....	5.52	6.71	....	6.01	....	0.28	6.77	20660
present	0.11	....	5.90	7.17	....	4.77	....	0.27	5.56	20661
....	....	....	5.73	6.97	....	6.50	....	0.25	8.76	20735
....	....	....	4.61	5.60	....	6.14	....	1.48	8.85	20736
....	....	....	7.24	8.80	0.53	4.10	3.57	1.97	9.56	21567

TABLE XX. ANALYSES OF SHEEP MANURE, ETC.

Station Number.....	21148	21283	21174	20911	21418	20957	21482	21423
	%	%	%	%	%	%	%	%
Nitrogen in nitrates.....	0.07			0.06				0.18
" in ammonia.....	0.12			0.20			0.06	0.78
" organic.....	1.31			2.28			1.22	2.78
" total found.....	2.43	1.50	2.25	2.54	1.48	2.08	1.28	3.74
" guaranteed.....	2.06	1.23	1.80	2.25	1.50	2.00	1.23	4.10
Phosphoric acid, citrate-insoluble.....			0.15	0.15			0.08	0.30
" total found.....	1.65	0.80	1.25	1.43	0.90	1.55	1.00	3.40
" " guaranteed.....	1.25	1.00		1.25	0.75		1.00	2.70
Potash, water-soluble, found.....	2.08	2.99	2.08	2.13	2.84	2.13	2.71	1.39
" " guaranteed.....	1.00	2.50	2.00	2.00	3.00	2.00	2.50	1.30
Cost per ton.....	\$45.00	\$50.00	\$45.00	\$40.00	\$49.00	\$50.00		\$53.00

POTASH-MARL.

21426. One sample of Potash-Marl manufactured by the Potash-Marl, Inc., New York, was taken by the station agent from the stock of Lightbourn & Pond Co., New Haven.

This is prepared from green sand marl and may contain six per cent or more of potash not, however, in water-soluble form. Only phosphoric acid, of which it contains an inconsiderable amount, is guaranteed by the manufacturer.

The analysis is as follows:

Station No.	21426
	%
Available phosphoric acid, found.....	0.47
" guaranteed.....	0.24
Total phosphoric acid, found.....	1.30
" guaranteed.....	0.88
Price per ton.....	\$45.00

LIMESTONE, ETC.

Three samples of lime-bearing materials were submitted for analysis.

21126. Ground limestone, submitted by C. R. Treat, Orange.

20668. Unground rock, submitted by Edson Cogswell, New Preston.

20545. Hydrated lime, submitted by Dwight Coles, Salisbury. Analyses are as follows:

Station No.	21126	20668	20545
	%	%	%
Lime (CaO).....	32.76	24.73	62.25
Magnesia (MgO)....	12.10		0.85
Insoluble in acid....	13.88	2.29	0.94

In case of sample **21126**, 98 per cent passed a 20 mesh sieve, 85 per cent passed 40 mesh and 80 per cent passed 50 mesh.

PEAT OR MUCK.

Four samples of this material were submitted.

20091. Natural humus, dried, submitted by Bertolf Bros., Sound Beach.

20611. "Radio-active Peat" submitted by A. A. Young, Jewett City. It is claimed that the radio-activity of the product is the stimulus for the increased growth of plants.

21596, Subsoil and **21597**, top soil, submitted by Elm City Nursery, New Haven.

Analyses are as follows:

Station No.	20091		20611		21596		21597	
	As rec'd %	Dry basis %	As rec'd %	Dry basis %	As rec'd %	Dry basis %	As rec'd %	Dry basis %
Water.....	22.40	.....	41.30	.....	78.00	.....	70.00	.....
Ash.....	48.98	63.08	33.70	57.40	2.68	12.17	1.62	5.39
Organic and volatile	28.62	36.92	25.00	42.60	19.32	87.83	28.38	94.61
Nitrogen.....	1.02	1.32	.....	.....	0.37	1.70	0.53	1.75

These materials particularly **21596** and **21597**, should be valuable as absorbents and for composting with manure; the economy of their use will depend, of course, upon the cost of handling.

We can give no opinion on the merits of **20611** from the standpoint of radio-activity.

SEWAGE SLUDGE.

Two samples of dried sewage sludge have been examined.

20612. Product of the sewage disposal plant in Stratford, submitted by R. H. Hunter.

21802. Product of the East Port Chester sewage disposal plant, submitted by Albert S. Mead, Greenwich.

Analyses are as follows:

Station No.	20612	21802
	%	%
Moisture.....	2.56	.....
Ash.....	64.92	55.55
Nitrogen, in ammonia.....	0.06	0.02
organic, water-soluble.....	....	0.22
organic, water-insoluble.....	....	1.66 ¹
total.....	1.74	1.90
Phosphoric acid, "available".....	....	0.47
total.....	1.04	0.60
Potash, total.....	....	0.27

¹About 60 per cent in so-called "active" form.

In general, the fertilizer ingredients, i.e., nitrogen, phosphoric acid and potash, in this kind of material are inconsiderable. Its chief usefulness is when applied to light, sandy soils which will be benefited by the humus which it contains.

MISCELLANEOUS MATERIALS.

Soils.

Nineteen samples have been submitted. Tests were made for acidity and lime requirement but no further examinations were undertaken. The diagnosis of soil troubles is a difficult and uncertain task not to be solved by the usual chemical analysis.

CHECK COTTONSEED MEALS.

Thirty samples, chiefly cottonseed meals, were examined and reported to the American Oil Chemists' Society in connection with their cooperative program in which this laboratory has participated. The schedule involves the analysis of weekly samples sent out by the Society to various control and industrial laboratories for the purpose of studying uniformity of methods and technique in the analysis of this class of products.

CHECK FERTILIZERS.

Eleven samples of mixed fertilizers have been analyzed and reported to the Royster Guano Co. The plan and purpose of this cooperative work is similar to that already explained for the Check Meal series.

UNCLASSIFIED.

Seven samples of miscellaneous materials have been examined which require no particular comment.

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